** JOB STATUS REPORT

AS OF JUN 28 12 16:09

MDEQ-CADILLAC

JOB #338

DATE TIME

TO/FROM 001 6/28 16:08 DEQ:SWQD:COMP ENF MODE MIN/SEC UF--S 00' 23"

PGS 003

STATUS OK





Michigan Department of Environmental Quality Cadillac District Office Surface Water Quality Division 120 W. Chapin Street Cadillac, Michigan 49601-2158

> Telephone: 231-775-3960 Facsimile: 231-775-1511

OMI

INVOICE

Traverse City Office:
606 Franklin Street
Traverse City, MI 49684
Mailing Address:
P.O. Box 6350
Traverse City, MI 49696
Tel 616 922-4921
Fax 616 922-8170

MDEQ Cadillac District Office 120 W. Chapin St. Cadillac, MI 49601-2158 Date: Apr. 4, 2002 Project No. Williamsburg Invoice No. MD002-01

Attn: Sy Paulik	RECEIVED
This invoice is for laboratory analysis performed.	APR - 9 2002
	SURFACE WATER QUALITY DIVISION CADILLAC DISTRICT OFFICE

Sample Identification: Williamsburg samples

(1) BOD analysis @ \$20.00 (1) TSS analysis @ \$10.00 (1) Chloride analysis @ \$15.00	\$20.00 \$10.00 \$15.00
(1) Chioride analysis (a) 415.00	Ψ15.00
SUBTOTAL SUBTOTAL	<u>\$ 45.00</u>
TOTAL AMOUNT DUE	<u>\$ 45.00</u>

Due and Payable Upon Receipt

Please send your remittance to: 3

Operations Management International, Inc. 606 Franklin Street
Traverse City, MI 49686

INDEX	379	00 f	-		
				_	

REC'D/APPROVED Michael Steple



STATE OF MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY CADILLAC DISTRICT OFFICE



June 27, 2002

Mr. Chris Hubbell Williamsburg Receiving & Storage 10190 Munro Road Williamsburg, MI 49690 FILE

Dear Mr. Hubbell:

SUBJECT: Results of Samples Taken From the Ditch along Munro Road

Enclosed are the laboratory results of samples taken from the road ditch along Munro Road. These sample results show a much higher strength of BOD (biochemical oxygen demand) than standard storm water flows.

Please feel free to contact me if you have any questions.

Sincerely,

S√ V. Paulik

Surface Water Quality Division

Cadillac District Office

231-775-3960, Extension 6267

Enclosure

cc/enc: Whitewater Township

Mr. Joe Quandt, Menmuir, Zimmerman, Kuhn, Taylor and Quandt, PLC

Mr. Rick Rusz, DEQ, WMD-Lansing Ms. Janice Heuer, DEQ, WMD-Cadillac Ms. Janna Sebald, DEQ, SWQD-Lansing



OMI, Inc. 606 Franklin Street Traverse City, MI 49686 Tel 231 922.4922 Fax 231 992.8170

May 20, 2002

Sy Paulik MDEQ Cadillac District Office 120 W. Chapin St. Cadillac MI 49601-2158

Dear Sy:

Enclosed please find the results for your water samples. Analyses were performed according to the "Standard Methods for Examination of Water and Wastewater," 18th Edition.

If you have any questions concerning this result, please feel free to contact our laboratory by phoning (231) 922-4922.

147 0 0 0000

MAY 2 2 2002

RECEIVED

SURFACE WATER QUALITY DIVISION CADILLAC DISTRICT OFFICE

Sincerely,

Liz Hart Lab Analyst

mf .

Enclosure: Lab Report, Invoice

OPERATIONS MANAGEMENT INTERNATIONAL TRAVERSE CITY WASTEWATER TREATMENT PLANT

ANALYTICAL LABORATORY REPORT

CLIENT: MDEQ

REPORT DATE: May 20, 2002

ADDRESS: Cadillac District Office

120 W. Chapin St.

Cadillac MI 49601-2158

PROJECT: Williamsburg Results

Sample ID	Sample Date	Analysis Date	Analysis	Units	Result
Ditch across from house*	4/18/02	4/23/02	BOD	mg/L	13.6
Ditch across from house	4/18/02	4/25/02	Chloride	mg/L	11.0
Ditch across from house	4/18/02	4/25/02	Nitrate	mg/L	ND
Boals Ditch*	4/18/02	4/23/02	BOD	mg/L	35.0
Boals Ditch	4/18/02	4/25/02	Chloride	mg/L	13.0
Boals Ditch	4/18/02	4/25/02	Nitrate	mg/L	ND
Ditch across from Rental	4/21/02	4/23/02	BOD	mg/L	>250
Ditch across from Rental	4/21/02	4/25/02	Chloride	mg/L	433
Ditch across from Rental	4/21/02	4/25/02	Nitrate	mg/L	2.53
Field Storm Runoff	4/22/02	4/23/02	BOD	mg/L	>250
Field Storm Runoff	4/22/02	4/25/02	Chloride	mg/L	7.0
Field Storm Runoff	4/22/02	4/25/02	Nitrate	mg/L	.260
Williamsburg AP1*	4/27/02	4/30/02	BOD	mg/L	>250
Williamsburg AP2*	4/27/02	4/30/02	BOD	mg/L	>250
Williamsburg AP3*	4/27/02	4/30/02	BOD	mg/L	>250
Williamsburg AP1	4/27/02	4/30/02	Conductivity	Us/cm	341
Williamsburg AP2	4/27/02	4/30/02	Conductivity	Us/cm	365
Williamsburg AP3	4/27/02	4/30/02	Conductivity	Us/cm	281

Signature, Lab Analyst

RECEIVED

MAY 2 2 2002

SURFACE WATER QUALITY DIVISION CADILLAC DISTRICT OFFICE

Sample ID	Sample Date	Analysis Date	Analysis	Units	Result
Williamsburg R&S	5/2/02	5/3/02	BOD	mg/L	27.4
Williamsburg R&S	5/2/02	5/3/02	TSS ·	mg/L	42.1
Williamsburg R&S	5/2/02	5/3/02	NH3	mg/L	.098
Williamsburg R&S	5/2/02	5/6/02	Nitrate	mg/L	<.25
Williamsburg R&S	5/2/02	5/7/02	Chloride	mg/L	5.0
MDEQ	5/12/02	5/14/02	BOD	mg/L	54.6
MDEQ	5/12/02	5/14/02	TSS	mg/L	60.3
	<u> </u>				
	<u> </u>				
		·			

^{*}Set after holding time

Signature, Lab Analyst

WKS OMI, Inc. GT CO

606 Franklin Street

Traverse City, MI 49686

Tel 231 922.4922

Fax 231 992.8170

RECEIVED

SURFACE WATER QUALITY DIVISION CADILLAC DISTRICT OFFICE



May 20, 2002

Sy Paulik MDEQ Cadillac District Office 120 W. Chapin St. Cadillac MI 49601-2158

Dear Sy:

Enclosed please find the results for your water samples. Analyses were performed according to the "Standard Methods for Examination of Water and Wastewater," 18th Edition.

If you have any questions concerning this result, please feel free to contact our laboratory by phoning (231) 922-4922.

Sincerely,

Liz Hart Lab Analyst

mf

Enclosure: Lab Report, Invoice

OPERATIONS MANAGEMENT INTERNATIONAL TRAVERSE CITY WASTEWATER TREATMENT PLANT

ANALYTICAL LABORATORY REPORT

CLIENT: MDEQ

REPORT DATE: May 20, 2002

ADDRESS: Cadillac District Office

120 W. Chapin St.

Cadillac MI 49601-2158

PROJECT: Williamsburg Results

Sample ID	Sample Date	Analysis Date	Analysis	Units	Result
Ditch across from house*	4/18/02	4/23/02	BOD	mg/L	13.6
Ditch across from house	4/18/02	4/25/02	Chloride	mg/L	11.0
Ditch across from house	4/18/02	4/25/02	Nitrate	mg/L	ND
Boals Ditch*	4/18/02	4/23/02	BOD	mg/L	35.0
Boals Ditch	4/18/02	4/25/02	Chloride	mg/L	13.0
Boals Ditch	4/18/02	4/25/02	Nitrate	mg/L	ND
Ditch across from Rental	4/21/02	4/23/02	BOD	mg/L	>250
Ditch across from Rental	4/21/02	4/25/02	Chloride	mg/L	433
Ditch across from Rental	4/21/02	4/25/02	Nitrate	mg/L	2.53
Field Storm Runoff	4/22/02	4/23/02	BOD	mg/L	>250
Field Storm Runoff	4/22/02	4/25/02	Chloride	mg/L	7.0
Field Storm Runoff	4/22/02	4/25/02	Nitrate	mg/L	.260
Williamsburg AP1*	4/27/02	4/30/02	BOD	mg/L	>250
Williamsburg AP2*	4/27/02	4/30/02	BOD	mg/L	>250
Williamsburg AP3*	4/27/02	4/30/02	BOD	mg/L	>250
Williamsburg AP1	4/27/02	4/30/02	Conductivity	Us/cm	341
Williamsburg AP2	4/27/02	4/30/02	Conductivity	Us/cm	365
Williamsburg AP3	4/27/02	4/30/02	Conductivity	Us/cm	281

Signature, Lab Analyst

RECEIVED

MAY 2 2 2002

SURFACE WATER QUALITY DIVISION CADILLAC DISTRICT OFFICE

Sample ID	Sample Date	Analysis Date	Analysis	Units	Result
Williamsburg R&S	5/2/02	5/3/02	BOD	mg/L	27.4
Williamsburg R&S	5/2/02	5/3/02	TSS	mg/L	42.1
Williamsburg R&S	5/2/02	5/3/02	NH3	mg/L	.098
Williamsburg R&S	5/2/02	5/6/02	Nitrate	mg/L	<.25
Williamsburg R&S	5/2/02	5/7/02	Chloride	mg/L	5.0
MDEQ	5/12/02	5/14/02	BOD	mg/L	54.6
MDEQ	5/12/02	5/14/02	TSS	mg/L	60.3
				J	
	<u>-</u>				
			h		
					l
	<u> </u>		·		

^{*}Set after holding time

Signature, Lab Analyst

OMI

INVOICE

MDEQ Cadillac District Office 120 W. Chapin St. Cadillac, MI 49601-2158 Date: May 20, 2002 Project No. Williamsburg Invoice No. MD002-02

Attn: Sy Paulik

This invoice is for laboratory analysis performed.

Sample Identification: Williamsburg samples April and May 2002

(9) BOD analysis @ \$20.00	\$180.00
(2) TSS analysis @ \$10.00	\$20.00
(5) Chloride analysis @ \$15.00	\$75.00
(5) Nitrate analysis @ \$12.00	\$60.00
(1) NH3 analysis @ \$10.00	\$10.00
(3) Conductivity analysis @ \$8.00	\$24.00
SUBTOTAL	<u>\$ 369.00</u>
TOTAL AMOUNT DUE	<u>\$ 369.00</u>

Due and Payable Upon Receipt

Please send your remittance to:

Operations Management International, Inc. 606 Franklin Street
Traverse City, MI 49686

INDEX 37900

PCA 40530 PROJECT 480047

REC'D/APPROVED W. DEPO

WKS | Ree'd 5/10/02

OPERATIONS MANAGEMENT INTERNATIONAL TRAVERSE CITY WASTEWATER TREATMENT PLANT

ANALYTICAL LABORATORY REPORT

CLIENT: MDEQ

REPORT DATE: April 10 2002

ADDRESS: Cadillac District Office

120 W. Chapin St.

Cadillac MI 49601-2158

PROJECT: Williamsburg Results

Sample ID	Sample Date	Analysis Date	Analysis	Units	Result
MDEQ	4-27-02	4.30-02	MOD	mg11	7250 7250
MDEQ		}			>250 1
MDEQ	V	<i>y</i>	V		
	5-2-62	5-3-02	WHA		.098
			155		42.1
		V	COD		27.4
		5-6-02	vistate		4.25
V		5-6-02 5-7-02	Chloride		5,0
				<u> </u>	
<u></u>	[
<u>.</u>					
	·				
			<u>L</u>		

Newest INFO

Signature, Lab Analyst

From:



3168 Latranier Road Traverse City, MI 49686 Phone 231-946-6767 Fax 231-946-8741 www.sosanalytical.com

COMPANY:

OMI

TCWWTP

SOS PROJECT NO:

021115

NAME:

SAMPLED BY:

LIZ HART/OMI

PROJECT NO:

DATE SAMPLED:

4/18/02

WBSN:

WELL PERMIT:

TIME SAMPLED:

TAX ID: LOCATION: **BAMPLE MATRIX:**

DATE RECEIVED:

GRAB/WATER 4/22/02

TIME RECEIVED:

3:10 PM

MI

COUNTY:

TWP: INORGANICS

		-11-1-11-1						
1 CHLORIDE EPA 325.2 11 2 mg/L (PPM) KMC 4/25/02 1 NITROGEN, NITRATE - EPA 359.2 ND 0.15 mg/L (PPM) KMC 4/24/02 SAMPLE ID: BOALS DITCH 2 CHLORIDE EPA 325.2 13 2 mg/L (PPM) KMC 4/25/02 2 NITROGEN, NITRATE - EPA 353.2 ND 0.15 mg/L (PPM) KMC 4/24/02 SAMPLE ID: DITCH ACROSS FROM RENTALS 3 CHLORIDE EPA 325.2 433 5 mg/L (PPM) KMC 4/25/02 3 NITROGEN, NITRATE - EPA 353.2 433 5 mg/L (PPM) KMC 4/25/02 SAMPLE ID: FIELD STORM RUNOFF 4 CHLORIDE EPA 325.2 7 5 mg/L (PPM) KMC 4/25/02	No:	Ansivels	Concentration	LOD	<u>Units</u>	Angivas		Drinking Water Rea Limit(MGL
1 NITROGEN, NITRATE - EPA 359.2 ND 0.15 mg/L (PPM) KMC 4/24/02 SAMPLE ID: BOALS DITCH 2 CHLORIDE EPA 325.2 13 2 mg/L (PPM) KMC 4/25/02 2 NITROGEN, NITRATE - EPA 353.2 ND 0.15 mg/L (PPM) KMC 4/24/02 SAMPLE ID: DITCH ACROSS FROM RENTALS 3 CHLORIDE EPA 325.2 433 5 mg/L (PPM) KMC 4/25/02 3 NITROGEN, NITRATE - EPA 353.2 2.53 0.5 mg/L (PPM) KMC 4/24/02 SAMPLE ID: FIELD STORM RUNOFF 4 CHLORIDE EPA 325.2 7 5 mg/L (PPM) KMC 4/25/02	BAN	aple ID: Drain Across from House						
SAMPLE ID: BOALS DITCH 2 CHLORIDE EPA 325.2 13 2 mg/L (PPM) EMC 4/25/02 2 NITROGEN, NITRATE - EPA 353.2 ND 0.15 mg/L (PPM) EMC 4/24/02 SAMPLE ID: DITCH ACROSS FROM RENTALS 3 CHLORIDE EPA 325.2 433 5 mg/L (PPM) EMC 4/25/02 3 NITROGEN, NITRATE - EPA 353.2 2.53 0.5 mg/L (PPM) KMC 4/24/02 SAMPLE ID: FIELD STORM RUNOFF 4 CHLORIDE EPA 325.2 7 5 mg/L (PPM) EMC 4/25/02	1 (CHLORIDE EPA 325.2	11	2	mg/L (PPM)	KMC	4/25/02	
2 CHLORIDE EPA 325.2 13 2 mg/L (PPM) KMC 4/25/02 2 NITROGEN, NITRATE - EPA 353.2 ND 0.15 mg/L (PPM) KMC 4/24/02 8AMPLE ID: DITCH ACROSS FROM RENTALS 3 CHLORIDE EPA 325.2 433 5 mg/L (PPM) KMC 4/25/02 3 NITROGEN, NITRATE - EPA 353.2 2.53 0.5 mg/L (PPM) KMC 4/24/02 8AMPLE ID: FIELD STORM RUNOFF 4 CHLORIDE EPA 325.2 7 5 mg/L (PPM) KMC 4/25/02	ł I	nitrogen, neirate – epa 339.2	ND	0.15	mg/L (PPM)	KMC	4/24/02	
2 NITROGEN, NITRATE - EPA 353.2 ND 0.15 mg/L (PPM) EMC 4/24/02 SAMPLE ID: DITCH ACROSS FROM RENTALS 3 CHLORIDE EPA 325.2 433 5 mg/L (PPM) EMC 4/25/02 3 NITROGEN, NITRATE - EPA 253.2 2.53 0.5 mg/L (PPM) KMC 4/24/02 SAMPLE ID: FIELD STORM RUNOFF 4 CHLORIDE EPA 325.2 7 5 mg/L (PPM) KMC 4/25/02	SAN	MPLE ID: BOALS DITCH						· · · · · · · · · · · · · · · · · · ·
### SAMPLE ID: DITCH ACROSS FROM RENTALS 3 CHLORIDE EPA 325.2 433 5 mg/L (PPM) EMC 4/25/02 3 NITROGEN, NITRATE - EPA 353.2 2.53 0.5 mg/L (PPM) EMC 4/24/02 \$AMPLE ID: FIELD STORM RUNOFF 4 CHLORIDE EPA 325.2 7 5 mg/L (PPM) EMC 4/25/02	2 (CHLORIDE EPA 325.2	1,3	2	mg/L (PPM)	KMC	4/25/02	
3 CHLORIDE EPA 325.2 433 5 mg/L (PPM) EMC 4/25/02 3 NITROGEN, NITRATE - EPA 353.2 2.53 0.5 mg/L (PPM) KMC 4/24/02 SAMPLE ID: FIELD STORM RUNOFF 4 CHLORIDE EPA 325.2 7 5 mg/L (PPM) KMC 4/25/02	2]	nitrogen, nitrate – epa 353.2	ND	0.15	mg/L (PPM)	KMC	4/24/02	
3 NITROGEN, NTTRATE - EPA 353.2 2.53 0.5 mg/l (PPM) KMC 4/24/02 SAMPLE ID: FIELD STORM RUNOFF 4 CHLORIDE EPA 325.2 7 5 mg/l (PPM) KMC 4/25/02	BAN	IPLE ID: DITCH ACROSS FROM RENTALS			,		· · · · · · · · · · · · · · · · · · ·	
SAMPLE ID: FIELD STORM RUNOFF 4 CHLORIDE EPA 325.2 7 5 mg/L (PPM) KMC 4/25/02	3 (CHLORIDE EPA 325.2	433	5	mg/L (PPM)	KMC	4/25/02	
4 CHLORIDE EPA 325.2 7 5 mg/L (PPM) KMC 4/25/02	3 1	nitrogen, nitraite – EPA 353.2	2.53	0.5	mg/L (PPM)	KIMIC	4/24/02	
	SAN	PLE ID: FIELD STORM RUNOFF						
4 NITROGEN, NITRATE+MIRKIE-EPA 353.2 0.26 0.25 mg/l (PPM) EMC 4/24/02	4 (CHLORIDE EPA 325.2	7	\$	mg/L (PPM)	KMC	4/25/02	
	4]	MTROGEN,MTRATE+MTRITE-EPA 353.2	0.26	0.25	TW/L (PPM)	KMC	4/24/02	

ND = NOT DETECTED LOD = LIMIT OF DETECTION SMCL = FEDERAL NON-ENFORCEABLE LIMIT MCL = MAXIMUM CONTAMINANT LEVEL 8.U. = STANDARD pH UNITS REPORTED AT 25 C DISS = DISSOLVED

LAB MANAGER

Page 1 of 1

D16

E to E age I

,		63 (V	- 5010	1	
Hesult	sinU	eieylanA	stad eievianA	Sample Date	(II siquae
から	11 200	ROCY	60-EG-40	atro-ec-17	Sconounad &
४७२.व		(100)		160-91-4	1775 grows 1997
OSEX		0 व्य		60-16-4	From & Digh beres
02.6 5	1	Geo	1	60-66-12	Journ Most
0.11	7	56,001,00	60-26-11	60-81-12 200	Azzanlds-6.A
130	1150 mg	261012	1/	11	44.050000
0.55.2	11 P W	11	11 1	W 60-18 1	Setund
00.5	1184	11 33	10 10	EAGG 427 %	<i>प्रमु</i> न्डिगः है।
an	//	DYOH:	60-26-12	80-81-17	SON SHAPPIO
On	ン、、	-/	" "	11 11	गम् () त्रव्या
E3.6	4 11	11	60-26-12	PO-18-17	5300 44340
078	4 11	4	CD-56-17	40-66-12	Tart Care

*Set after holding time

Signature, Lab Analyst

) 4dos 4800g

ε

05/02/02 GT Co

2.1 COMPARISON OF STORMWATER QUALITY FROM DIFFERENT SOURCE AREAS

One of the conclusions of the massive national EPA NURP monitoring study was that while pollutant concentrations were indeed variable at each site, there appeared to be no statistical difference among commercial, industrial and residential land uses at the catchment level (25 to 500 acres). In general, mean pollutant concentrations found in stormwater runoff were surprisingly consistent at the catchment or watershed level (see Table 2.1). One example of this consistency is the mean phosphorus concentration observed in stormwater runoff at 37 different catchments across the U.S. with widely different climate, soils, density and vegetative cover (Figure 2.1). Despite such differences, the average concentration of total phosphorus is about the same no matter where the runoff was sampled.

TABLE 2.1: MEAN POLLUTANT CONCENTRATIONS (IN MG/L) FOR SELECTIVE PARAMETERS FOR STORMWATER RUNOFF (SOURCE: EPA, 1983)

Pollutant	New Suburban NURP Sites (Washington, DC)	National NURP Study Average
Phosphorus Total Ortho	0.26 0.12	0.46 -
Nitrogen Total Nitrate TKN	2.00 0.48 1.51	3.31 0.96 2.35
COD	35.6	90.8
BOD (5-Day)	05.1	11.9
Metals Zinc Lead Copper	0.037 0.018	0.176 0.180 0.047

Jile

Traverse City Office: 608 Franklin Street Traverse City, MI 49684 Mailing Address: P.O. Box 6350 Traverse City, MI 49696 Tel 616 922-4921

Fax 616 922-8170

OMI

INVOICE

· · · OICE

MDEQ Cadillac District Office 120 W. Chapin St. Cadillac, MI 49601-2158 Date: Apr. 4, 2002 Project No. Williamsburg Invoice No. MD002-01

Attn: Sy Paulik	RECEIVED
This invoice is for laboratory analysis performed.	APR - 9 2002
	SURFACE WATER QUALITY DIVISION CADILLAC DISTRICT OFFICE

Sample Identification: Williamsburg samples

(1) BOD analysis @ \$20.00 (1) TSS analysis @ \$10.00 (1) Chloride analysis @ \$15.00	\$20.00 \$10.00 \$15.00
SUBTOTAL SUBTOTAL	<u>\$ 45.00</u>
TOTAL AMOUNT DUE	<u>\$ 45.00</u>

Due and Payable Upon Receipt

Please send your remittance to:

Operations Management International, Inc. 606 Franklin Street
Traverse City, MI 49686

INDEX	37900
-------	-------

PCA 40530 PROJECT 480043

REC'D/APPROVED Michael Stifle



Traverse City Office:
606 Franklin Street
Traverse City, MI 49684
Mailing Address:
P.O. Box 6350
Traverse City, MI 49696
Tel 616 922-4921
Fax 616 922-8170

April 4, 2002

Sy Paulik MDEQ Cadillac District Office 120 W. Chapin St. Cadillac MI 49601-2158 RECEIVED

APR - 9 2002

SURFACE WATER QUALITY DIVISION CADILLAC DISTRICT OFFICE

Dear Sy:

Enclosed please find the results for your water samples. Analyses were performed according to the "Standard Methods for Examination of Water and Wastewater," 18th Edition.

If you have any questions concerning this result, please feel free to contact our laboratory by phoning (231) 922-4922.

Sincerely

Liz Hart Lab Analyst

mf

Enclosure: Lab Report, Invoice

OPERATIONS MANAGEMENT INTERNATIONAL TRAVERSE CITY WASTEWATER TREATMENT PLANT

ANALYTICAL LABORATORY REPORT

CLIENT: MDEQ

REPORT DATE: March 20, 2002

ADDRESS: Cadillac District Office

120 W. Chapin St.

Cadillac MI 49601-2158

PROJECT: Williamsburg Results

Sample ID	Sample Date	Analysis Date	Analysis	Units	Result
MDEQ	3/13/02	3/14/02	BOD	mg/L	218
MDEQ	3/13/02	3/14/02	TSS	mg/L	52.9
MDEQ	3/13/02	3/14/02	Chloride	mg/L	63
		·			
			<u></u>		
		·			

Signature, Lab Analyst

PAGE. 01

MDEQ-CADILLAC

JOB #439

DATE TIME TO/FROM
001 3/20 16:59 DEQ:SWQD:COMP ENF

MODE

UF--S

MIN/SEC 00'19" PGS 002 STATUS



Michigan Department of Environmental Quality Cadillac District Office Surface Water Quality Division 120 W. Chapin Street Cadillac, Michigan 49601-2158

Telephone: 231-775-3960 Facsimile: 231-775-1511

	ATE THE PER	OSIMILE COVERSHI	ET ANTIQUE MANAGES	公 教
TO:	Janna	Sabald	·	
COMPANY:	CIE			
FAX NO:	517 37:	3 2040		
FROM:	Sy V. Pa	ulik.		
EXTENSION	: <u>6261</u>			
DATE: 3	120/02	-	NO. OF PAGES INCLUDING COVER SHEET	
COMMENTS				,

I Believe you have the lab results of process water in the Sile- Chlorida then was 164 mg/L.

WK+S GTCO

OPERATIONS MANAGEMENT INTERNATIONAL TRAVERSE CITY WASTEWATER TREATMENT PLANT

ANALYTICAL LABORATORY REPORT

CLIENT: MDEQ

REPORT DATE: March 20, 2002

ADDRESS: Cadillac District Office

120 W. Chapin St.

Cadillac MI 49601-2158

PROJECT: Williamsburg Results

Sample ID	Sample Date	Analysis Date	Analysis	Units	Result
MDEQ	3/13/02	3/14/02	BOD	mg/L	218
MDEQ	3/13/02	3/14/02	TSS	mg/L	52.9
MDEQ	3/13/02	3/14/02	Chloride	mg/L	63

Signature, Lab Analyst

FLOW MONITORING

<u>Williamsburg</u>	Receiving	and Storage
Facility Name	1	

Date: April 15, 2002

GW283450

INFLUENT FLOW

Sample Location	Sampling Frequency	Limit (gallons)	Daily Maximum Flow	Monthly Average Flow	Cumulative Year to Date Flow	Number of Limit Exceedances
None	Not Applicable	Not Applicable				
					<i>.</i>	
	·					

EFFLUENT FLOW

Sample Location	Sampling Frequency	Limit (gallons)	Daily Maximum Flow	Monthly Average Flow	Cumulative Year to Date Flow	Number of Limit Exceedances
EF-1	Daily	42,000 gpd	35,000 gal	14,750 gal	Not Applicable	ZERO
EF-1	Annual	15.3 mgy	Not Applicable	Not Applicable	1.33 MMgal	ZERO
-						
	•		·			
· ·						

FALL & WINTER IRRIGATION SEASON

Williamsburg	Receivi	ng and	Storage
Essility Name	4		

ID Number

LAND APPLICATION

Sample Location	Sampling Frequency	Limit: (in/day) (in/week) (in/month)	Daily Maximum Application Rate (Inches)	Weekly Maximum Application Rate (Inches)	Cumulative Year Application (Inches)	Number of Limit Exceedances
LA-2	Daily	0.4 in/day	1.0	Not Applicable	Not Applicable	8
LA-2	Weekly	0.4 in/wk	Not Applicable	2.0	8.0	4
				·	•	
					·	
				·		
						<u> </u>

Date: April 15, 2002

EFFLUENT QUALITY

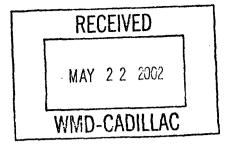
Williamsburg Receiving & Storage Facility Name 1

Date: April 15, 2002

GW283450 ID Number

Sample Location	Sampling Frequency	Parameter	Units	Limit: Rule 2227	Limit: Rule 2228	Maximum Concentration	Monthly Average	Number of Limit Exceedances
EQ-1	Monthly	Tot. Inorganic Nitrogen	mg/i	5	·	4.37	4.37	ZERO
EQ-1	Monthly	Ammonia Nitrogen	mg/l			4.31	4.31	Not Applicable
EQ-1	Monthly	Nitrate Nitrogen	mg/l	<u> </u>		< 0.15	< 0.15	Not Applicable
EQ-1	Monthly	Nitrite Nitrogen	mg/l			0.055	0.055	Not Applicable
EQ-1	Weekly	Specific Conductance	Umhos	·		94860	*****	Not Measured
EQ-1	Monthly	Sulfate	mg/l	250				Not Measured
EQ-1	Monthly	Sodium	mg/l	150		291	291	1
EQ-1	Monthly	Chloride	mg/l	250		650	650	1
EQ-1	Monthly	Tot. Phosphorus	mg/l	1		3.16	3.16	· 1
							- 	
						·		
						·		





OMI, Inc. Williamstry 606 Franklin Street Received Traverse City, MI 49686 G.T. & Tel 231 922,4922

Fax 231 992.8170

RECEIVED

MAY 2 2 2002

SURFACE WATER QUALITY DIVISION CADILLAC DISTRICT OFFICE

May 20, 2002

Sy Paulik MDEQ Cadillac District Office 120 W. Chapin St. Cadillac MI 49601-2158

Dear Sy:

Enclosed please find the results for your water samples. Analyses were performed according to the "Standard Methods for Examination of Water and Wastewater," 18th Edition.

If you have any questions concerning this result, please feel free to contact our laboratory by phoning (231) 922-4922.

Sincerely,

Liz Hart Lab Analyst

mf

Enclosure: Lab Report, Invoice

OPERATIONS MANAGEMENT INTERNATIONAL TRAVERSE CITY WASTEWATER TREATMENT PLANT

ANALYTICAL LABORATORY REPORT

CLIENT: MDEQ REPORT DATE: May 20, 2002

ADDRESS: Cadillac District Office

120 W. Chapin St.

Cadillac MI 49601-2158

PROJECT: Williamsburg Results

Sample ID	Sample Date	Analysis Date	Analysis	Units	Result
Ditch across from house*	4/18/02	4/23/02	BOD	mg/L	13.6
Ditch across from house	4/18/02	4/25/02	Chloride	mg/L	11.0
Ditch across from house	4/18/02	4/25/02	Nitrate	mg/L	ND
Boals Ditch*	4/18/02	4/23/02	BOD	mg/L	35.0
Boals Ditch	4/18/02	4/25/02	Chloride	mg/L	13.0
Boals Ditch	4/18/02	4/25/02	Nitrate	mg/L	ND
Ditch across from Rental	4/21/02	4/23/02	BOD	mg/L	>250
Ditch across from Rental	4/21/02	4/25/02	Chloride	mg/L	433
Ditch across from Rental	4/21/02	4/25/02	Nitrate	mg/L	2.53
Field Storm Runoff	4/22/02	4/23/02	BOD	mg/L	>250
Field Storm Runoff	4/22/02	4/25/02	Chloride	mg/L	7.0
Field Storm Runoff	4/22/02	4/25/02	Nitrate	mg/L	.260
Williamsburg AP1*	4/27/02	4/30/02	BOD	mg/L	>250
Williamsburg AP2*	4/27/02	4/30/02	BOD	mg/L	>250
Williamsburg AP3*	4/27/02	4/30/02	BOD	mg/L	>250
Williamsburg AP1	4/27/02	4/30/02	Conductivity	Us/cm	341
Williamsburg AP2	4/27/02	4/30/02	Conductivity	Us/cm	365
Williamsburg AP3	4/27/02	4/30/02	Conductivity	Us/cm	281

Signature, Lab Analyst

RECEIVED

MAY 2 2 2002

SURFACE WATER QUALITY DIVISION CADILLAC DISTRICT OFFICE

Sample ID	Sample Date	Analysis Date	Analysis	Units	Result
Williamsburg R&S	5/2/02	5/3/02	BOD	mg/L	27.4
Williamsburg R&S	5/2/02	5/3/02	TSS	mg/L	42.1
Williamsburg R&S	5/2/02	5/3/02	NH3	mg/L	.098
Williamsburg R&S	5/2/02	5/6/02	Nitrate	mg/L	<.25
Williamsburg R&S	5/2/02	5/7/02	Chloride	mg/L	5.0
MDEQ	5/12/02	5/14/02	BOD	mg/L	54.6
MDEQ	5/12/02	5/14/02	TSS	mg/L	60.3
					<u> </u>
					<u> </u>
					
<u> </u>					
			·		

^{*}Set after holding time

Signature, Lab Analyst

analytical

3188 LAFRANIER ROAD • TRAVERSE CITY, MICHIGAN 49886 • (231) 548-6767 • FAX (231) 546-8741

COMPANY:

WILLIAMSBURG RECEIVING & STORAGE

SOS PROJECT NO:

001867 - 1

NAME:

PROJECT NO:

SAMPLED BY:

PENNY HUBBELL/WR&S

PERMIT# MI0044741 DATE RECEIVED:

07/17/00

WSSN:

TIME RECEIVED:

1:17 PM

WELL PERMIT: TAX ID:

OUTFALL 001 TO TOBACCO

SAMPLE ID:

CREEK

LOCATION:

10190 MUNRO RD

DATE SAMPLED:

07/17/00

WILLIAMSBURG

TIME SAMPLED:

1:15 PM

М

SAMPLE MATRIX:

WASTE WATER

COUNTY:

TWP:

WET CHEMISTRY

Analysis	Concentration	<u>rod</u>	<u>Unita</u>	Analyst	<u>Date</u> Completed	Drinking Water Reg Limit(MCL)
BOD 5-DAY EPA 405.1	41	4	mg/L (PPM)	OMI	07/24/00	
pH EPA 150.1	7.2	+/- 0.1	\$.tu.	S S	07/17/00	
RESIDUE, NON-FILTERABLE(TSS)/SM2540D	10	1	mg/L (PPM)	ES	07/18/00	

ND - NOT DETECTED LOD = LIMIT OF DETECTION SMCL = FEDERAL NON-ENFORCEABLE LIMIT MCL - MAXIMUM CONTAMINANT LEVEL s.u. = STANDARD pH UNITS REPORTED AT 25 C DISS = DISSOLVED

Page 1 of 1

APPROVED BY:

KIRK L. CHASE CHEMIST / VICE PRESIDENT



3188 LAFRANIER ROAD · TRAVERSE CITY, MICHIGAN 49886 · (231) 946-8767 · FAX (231) 946-9741

COMPANY:

WILLIAMSBURG RECEIVING & STORAGE

SOS PROJECT NO:

001903 - 1

NAME:

WSSN:

TAX ID:

LOCATION:

PROJECT NO:

WR&S

PERMIT# MI0044741

WILLIAMSBURG

DATE RECEIVED: TIME RECEIVED:

SAMPLED BY:

07/19/00 11:30 AM

WELL PERMIT:

SAMPLE ID:

OUTFALL 001 TO TOBACCO

CREEK

10190 MUNRO RD DATE SAMPLED:

07/19/00

TIME SAMPLED: **SAMPLE MATRIX:**

WASTE WATER

М

COUNTY: TWP:

WET CHEMISTRY

Analysis	Concentration	LOD	<u>Units</u>	<u>Analyst</u>	<u>Date</u> Completed	Drinking Water Reg Limit(MCL)
BOD 5-DAY EPA 405.1	66	4	mg/L (PPM)	OMI	07/26/00	į
RESIDUE, NON-FILTERABLE(TSS)/SM2540D	2	1	mg/L (PPM)	ES	07/20/00	:

ND = NOT DETECTED LOD = LIMIT OF DETECTION SMCL = FEDERAL NON-ENFORCEABLE LIMIT MCL = MAXIMUM CONTAMINANT LEVEL 9.U. = STANDARD pH UNITS REPORTED AT 25 C DISS = DISSOLVED

APPROVED BY:

KIRK L CHASE

CHEMIST / VICE PRESIDENT

Page 1 of 1

3188 LAFRANIER ROAD • TRAVERSE CITY, MICHIGAN 49686 • (231) 946-6787 • FAX (231) 946-8741

COMPANY:

WILLIAMSBURG RECEIVING & STORAGE

SOS PROJECT NO:

Q01990 - 1

SAMPLED BY:

PENNY HUBBELL/WRAS

NAME: PERMIT# MI0044741 PROJECT NO:

DATE RECEIVED:

07/25/00

WSSN:

LOCATION:

TIME RECEIVED:

3:35 PM

WELL PERMIT:

OUTFALL 001 TO TOBACCO

SAMPLE ID:

CREEK

DATE SAMPLED:

07/25/00

TIME SAMPLED:

WILLIAMSBURG **SAMPLE MATRIX:**

GRAB/WASTE WATER

ΜĬ

10190 MUNRO RD

COUNTY: TWP:

TAX ID:

WET CHEMISTRY

Analysis	Concentration	LOD	<u>Unite</u>	Analyst	<u>Date</u> Completed	Prinking Water Reg Limit(MCL)
BOD 5-DAY EPA 405.1	30	7	mg/L (PPM)	OMI	07/31/00	:
pH EPA 150.1	7.2	+/- 0.1	s.u.	SS	07/25/00	ļ
RESIDUE, NON-FILTERABLE(TSS)/SM2540D	7	1	mg/L (PPM)	SS/ES	07/26/00	; !

ND = NOT DETECTED LOD = LIMIT OF DETECTION SMCL = FEDERAL NON-ENFORCEABLE LIMIT MCL = MAXIMUM CONTAMINANT LEVEL s.u. = STANDARD pH UNITS REPORTED AT 25 C DISS = DISSOLVED

Page 1 of 1

APPROVED BY:

KIRK L. CHASE

CHEMIST / VICE PRESIDENT

3188 LAFRANIER ROAD • TRAVERSE CITY, MICHIGAN 4888 • (221) 848-8767 • DAOR 1 • DAOR

COMPANY:

WILLIAMSBURG RECEIVING & STORAGE

SOS PROJECT NO:

002024 - 1

NAME:

WSSN:

TAX ID:

SAMPLED BY:

PENNY HUBBELL/WR&S

PROJECT NO:

LOCATION:

PERMIT# MI0044741

DATE RECEIVED: TIME RECEIVED:

07/27/00

WELL PERMIT:

3:53 PM

SAMPLE (D:

OUTFALL 001 TO TOBACCO

CREEK

10190 MUNRO RD

DATE SAMPLED:

07/27/00

WILLIAMSBURG

TIME SAMPLED:

M

SAMPLE MATRIX:

WASTE WATER

COUNTY:

TWP:

WET CHEMISTRY

Anelysis	Concentration	TOD	Unita	Analyst	<u>Date</u> Completed	Drinking Water Reg Limit(MCL)
BOD 5-DAY EPA 405.1	29	4	mg/L (PPM)	OMI	08/02/00	!
RESIDUE, NON-FILTERABLE(TSS)/SM2540D	10	1	mg/L (PPM)	ES	07/31/00	!

ND = NOT DETECTED LOD = LIMIT OF DETECTION SMCL = FEDERAL NON-ENFORCEABLE LIMIT MCL = MAXIMUM CONTAMINANT LEVEL s.u. = STANDARD pH UNITS REPORTED AT 25 C DISS = DISSOLVED

Page 1 of 1

APPROVED BY:

KIRK L. CHASE CHEMIST / VICE PRESIDENT

AS OF NOV 01 01 08:09

PAGE. OF

MDEQ-CADILLAC

JOB #700

DATE TIME 001 11/01 08:02 TO/FROM MODE 517 373 4797 EC--S MIN/SEC 06'51" PGS 022 STATUS OK



Michigan Department of Environmental Quality Cadillac District Office Surface Water Quality Division 120 W. Chapin Street Cadillac, Michigan 49601-2158

Telephone: 231-775-3960 Facsimile: 231-775-1511

FACSIMILE COVER SHEET
TO: Rick Rusz
COMPANY: WMD-Landing
FAX NO: 517-373-4797
FROM: Sy V. Paulik
EXTENSION: <u>U267</u>
DATE: 10/21/01 22 NO. OF PAGES INCLUDING COVER SHEET
COMMENTS:
Fax Jammed on 1st try - will send
one more time Jed

PAGE. 01

MDEQ-CADILLAC

JOB #695

DATE	TIME	TO/FROM	MODE	MIN/SEC	PGS	STATUS	
001 10 31		517 878 4797					
002	16:38	517 373 4797	ECS	05′ 16″	016	OK	



Michigan Department of Environmental Quality Cadillac District Office Surface Water Quality Division 120 W. Chapin Street Cadillac, Michigan 49601-2158

Telephone: 231-775-3960 Facsimile: 231-775-1511

FACSIMILE COVER SHEET
TO: Rick Rusz
COMPANY: WMD-Landing
FAX NO: 517-373-4797
FROM: Sy V. Paulik
EXTENSION: <u>6267</u>
DATE: 10/31/01 22 NO. OF PAGES INCLUDING COVER SHEET
COMMENTS:
Fax Jammed on 1st try - will send
one more time Jsd



Michigan Department of Environmental Quality

Cadillac District Office
Surface Water Quality Division
120 W. Chapin Street
Cadillac, Michigan 49601-2158

Telephone: 231-775-3960 Facsimile: 231-775-1511

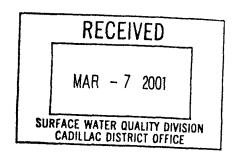
FACSIMILE COVER SHEET
TO: Rick Rusz
COMPANY: WMD-Lansing
FAX NO: 517-373-4797
FROM: Sy V. Paulik
EXTENSION: <u>U267</u>
DATE: 10/31/01 22 NO. OF PAGES INCLUDING COVER SHEET
COMMENTS:
Fax Jammed on 1st try- will send
one more time 15d

WKS

BALLENVIRONMENTALASSOCIATES

March 5, 2001

Mr. Mike Stifler, Supervisor Cadillac District Surface Water Quality Division 120 W. Chapin St. Cadillac, MI 49601



RE: Surface Water Analytical Results Outfall 001, NPDES Permit #MI0044741, Williamsburg Receiving and Storage, 10190 Munro Rd., Williamsburg, Section 8, Whitewater Township, Grand Traverse County, Michigan.

Dear Mr. Stifler,

As previously reported to your office, undertaken water quality sampling of effluent discharged the above-referenced location.	and Ball Environmental Associates have in violation of NPDES Permit #MI0044741 at
Enclosed please find a copy of analytical results from Fel	oruary 26 and 28, 2001 sampling at Outfall #001

on As summarized below, these results further document violations of water quality standards promulgated in administrative rules pursuant to Part 31 of NREPA, P.A. 451 of 1994, as amended.

Analyte (Method)	Outfall 001 – 10091 Munro Rd.	Water Quality Standard¹ Indicates high concentrations of oxidizing compounds. Not addressed by permit.		
COD (SM5220D)	2,180 mg/L (ppm)			
Conductivity (SM2510-B)	780 <i>u</i> S/cm	Indicates presence of brine (elevated chlorides). Not allowed by permit.		
Oil and Grease (EPA 413.1)	l mg/L (ppm)	Not allowed in discharge.		
pH (EPA 150.1)	4.7	6.5 – 9.0		
BOD 5-day (EPA 405.1)	3,838 mg/L (ppm)	60 mg/L (ppm)		

¹ NPDES Permit #MI0044741 and Part 4 Water Quality Standards, Part 31 Rules – Water Resources Protection, Michigan Natural Resources and Environmental Protection Act, P.A. 451 of 1994, as amended, 4/22/99.

Bold face indicates water quality standard noncompliance and/or permit violation.

Exemption 6 applies to entire document for redactions

P.O. Box 64 Lake Leelanau, Michigan 49653

ph/fx: 616-256-7824

bea@freeway.net

As indicated by these results, this facility is discharging effluent out of season and BOD results are more than 70 times the permitted maximum. Please acknowledge your receipt of this information in writing to Mr. Bradley Boals.

If you have any questions regarding this matter, please contact me at 231-256-7824 or bea@freeway.net.

Sincerely,

Ball Environmental Associates, L.L.C.

Wistopher Gobby

Christopher P. Grobbel, Ph.D. Senior Project Manager

enclosures

File #1001-01

Cc:



3188 LAFRANIER RD - TRAVERSE CITY, MICHIGAN 49686 - (231)946-6767 - FAX (231)946-8741

COMPANY:

PROJECT NO:

NAME:

WSSN: WELL PERMIT:

TAX ID:

LOCATION:

BALL ENVIRONMENTAL

SOS PROJECT NO:

010400 - 1

SAMPLED BY::

B. BOALS

DATE RECEIVED:

2/16/01

TIME RECEIVED:

3:20 PM

SAMPLE ID:

OUTFALL

DATE SAMPLED:

2/15/01

TIME SAMPLED: SAMPLE MATRIX:

WATER

MI

COUNTY: TWP:

WHITEWATER

MUNROE ST

WET CHEMISTRY

Analysis CHE GOAL OVERCEN DELCAND SM5220D	Concentration	LOD	Units	STATE OF THE PERSON.		Reg Limit(MCL)
CHEMICAL OXYGEN DEMAND SM5220D CONDUCTIVITY SM2510-B	2,180 780	5 .0	mg/L (PPM) uS/cm	SPL SS	2/26/01 2/19/01	
OIL&GREASE EPA 413.1 pH EPA 150.1	1 4.7	1 +/- 0.1	mg/L (PPM) s.u.	SS/M SS	2/27/01 2/28/01	

Page 1 of 1

ND = NOT DETECTED LOD = LIMIT OF DETECTION SMCL = FEDERAL NON-ENFORCEABLE LIMIT MCL = MAXIMUM CONTAMINANT LEVEL s.u. = STANDARD pH UNITS REPORTED AT 25 C DISS = DISSOLVED

APPROVED BY:

KIRK L. CHASE

CHEMIST / VICE PRESIDENT

Digitally signed by KIRK CHASE cn=KIRK CHASE, o=\$\tilde{O}\$\tilde{A}\tilde{A}\tilde{A}\tilde{A}\tilde{A}\tilde{A}\tilde{C}\tilde{A}\tilde{C}\tilde{



3188 LAFRANIER RD - TRAVERSE CITY, MICHIGAN 49686 - (231)946-6767 - FAX (231)946-8741

COMPANY:

BALL ENVIRONMENTAL

NAME:

PROJECT NO:

WSSN:

WELL PERMIT:

TAX ID:

LOCATION:

COUNTY: TWP:

WET CHEMISTRY

Analysis

BOD 5-DAY EPA 405.1

SOS PROJECT NO:

010403 - 1

SAMPLED BY::

CHRIS GROBBEL/BALL ENVIRON

DATE RECEIVED:

TIME RECEIVED:

SAMPLE ID:

9:30 AM **OUTFALL 001**

DATE SAMPLED:

2/19/01

2/19/01

TIME SAMPLED: SAMPLE MATRIX:

WATER

Date **Drinking Water** Concentration LOD Units Analyst Completed Reg Limit(MCL) 3,838 200 mg/L (PPM) **OMI** 2/28/01

ND = NOT DETECTED LOD = LIMIT OF DETECTION SMCL = FEDERAL NON-ENFORCEABLE LIMIT MCL = MAXIMUM CONTAMINANT LEVEL s.u. = STANDARD pH UNITS REPORTED AT 25 C DISS = DISSOLVED

Page 1 of 1

Digitally signed by KIRK CHASE cn=KIRK CHASE, 0=\$06 ANALYTICAL, c=US Date: 2001.03.01 15:50:00 -05'00'

Reason: Document is certified

APPROVED BY:

KIRK L. CHASE

CHEMIST / VICE PRESIDENT

Cadillee, Mt 49601
Atin: CHANSY VONGPHASOUK
Total: \$162.90

Matrix: Water Received: 1/9/2001 Client: SWQ_CADILLAC

Reported: 2/27/2001 Number of Samples: 1

EST	STATION 1	
UNITS	179	
Alkalinity of Water	179	
mg CaCO3/L	179	
Alkalinity - Bicarbonate	179	
mg CaCO3/L		
Alkalinity - Carbonate	K 5	
mg CaCO3/L		
Ammonia	4.8	
mg N/L		
Chloride in Water	2070	
mg/L		
COD	360	
mg/L		
Conductivity of Water	7170	
umho/cm		
Nitrate + Nitrite	0.1 DL	 *****
mg N/L		
Nitrite	K .01 HT DM	
mg N/L	K.OTHI DIM	
The state of the s	34	
Nitrogen - Kjeldahl	34	
mg N/L		
Ortho Phosphate	.14 HT DM	
mg P/L		
Phosphorus - Total	4.8	
mg P/L		
Solids - Suspended	A 94 NH	
mg/L		
Solids - Total Dissolved	7700	
mg/L		
Sulfate in Water	385	
mg/L		
TOC	2000	
mg/L		

RECEIVED

MAR - 5 2001

SURFACE WATER QUALITY DIVISION CADILLAC DISTRICT OFFICE

Workorder 0101027, Page 1 of 2 Printed 2/27/01 2:07 PM



MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY ENVIRONMENTAL LABORATORY (517) 335-9800

P.O. Box 30270 Lansing, MI 48909

Report To: Environmental Response Div.

District #6

120 W Chapin Street

Cadillac, MI 49601

Attn: CHANSY-VONGPHASOUK!

Total:

\$348.54

Lab Work Order # 0102095

Work Site ID:

WILLIAMSBURG REC.&STORAGE

Matrix: Water

Received: 2/21/2001

Reported: 3/16/2001

Client: ER_CADILLAC Number of Samples: 2

OUTFALL 1	SUMP 2	
	!	
101	86	
	.: .:	
101	86	
:	:	•
K 5	K 5	1
		,
1.1	1.1	,
		÷ :
166	QNS	
		:
1900	2000	
; 	•	
1029	1215	
:		
INT	INT	
	:	:
K 0.1 DL	K 0.1 DL	
_	:	
K .I DL HT	K .1 DL HT	
	1	·
17	17	i
		!
1.3 HT	1.7 HT	
	-	, ,
2.6	2.5	:
47	40	
	1	RECEIVED
1400	1900	1,202
176	ONS	MAR 2 2 2001
1,0	41.10	
i I		
710 DL	720 DL	SURFACE WATER QUALITY DE CADILLAC DISTRICT OFF
	101 K 5 1.1 166 1900 1029 INT K 0.1 DL K .1 DL HT	101 86 K 5 K 5 1.1 1.1 166 QNS 1900 2000 1029 1215 INT INT K 0.1 DL K 0.1 DL K .1 DL HT 17 17 1.3 HT 1.7 HT 2.6 2.5 47 40 1400 1900

DE	ENVIRONMEN				
(a) 02 = (295	ANALYSIS R	EQUEST SHEE		1 TD1V-W 1 TED	
SUBMITTER DISTRICT CECLI CONTROL OR OFFICE	MDEQ PRO	IECT		ATRIX=WATER [ACCEPT HT CODES?	
	MANAGER		0 1/01 00 10	YES / NO	
Chansy Vongolusoux	·		0 42600 48		
LOCATION SAMPLED / SITE IN NUMBER	si Sa	INDEX .	PCA PROJE	ici pr	
COLLECTED BY (1)	PHONE	Tage IN	DOITIONAL REPORT		
			ATTENTION OF		
OVERFLOW CONTRACT LAB (Required for ERD)	edi 173	187 6215 A		nt than above office)	
Over continue and independent of		W1 4561	(Noonco) (nomero		
**** SAFETY INFORMATION	REQUIRED **	**	 		
SEE BACK OF FO	-				
LAB USE SAMPLE IDENTIFICATION		OLLECTED	COMME	VTS	
ONLY	DATE	TIME		1 1	
· Out tall	2/10/01	11:00	45Dij added	2/20/01	
1 Stump 2	2/16/0/	11:15		Lab acc. den	CN boi.
3				Shared GN-1	NN DMIT
4					م ایداد
5					ه اروان
•					
			7.71 in 171		
7	-	+			
8		 			
2		 			
10					
ORGANIC	GENERAL CHI		أرجا المستخدم والمستخدم وا	RGANIC	
	Diss Oxygen	123456789	10 MA Total Metals MAD Diss-Field Filtere	12345678910 12345678910	
	NO _b o-Phes	12/3456789	10 MD Diss-Lab Filtered		
ON PESTICIDES/PCBS	Residue SS Residue TDS	<u>1</u> 23 4/3 6 7 8 9	0 10 Quantification Limit	High Low	•
(608/8081/8082) Pesticides & PCBs 1 2 3 4 5 6 7 8 9 10	BOD Tot 5 day	12345678		S 1 2 3 4 5 6 7 8 9 10	
Pesticides only 1 2 3 4 5 6 7 8 9 10	BOD Carb 5 day	123456789	10) Fe Co Li Mn	1 2 3 4 5 6 7 8 9 10	
PCBs only 1 2 3 4 5 6 7 8 9 10	•••••••	123456789	-7	12345678910	
***************************************	Chlorophyll	123456789	0 Ni - Nickel	12345678910	•
BNA BASE NEUTRAL & ACIDS (625/8270) G	A COD	1 2 3 4 5 6 7 8 9	Sb - Antimony	1 2 3 4 5 6 7 8 9 10	
BNAs 1 2 3 4 5 6 7 8 9 10	TOC	1 2 3 4 5 6 7 8 9	Ca Mg Na K	1 2 3 4 5 6 7 8 9 10	
PNAs only	NO3 + NO2, NH3 KJEL N, Tet P		7 10 Hardness 7 10	1 2 3 4 5 6 7 8 9 10	
ACIDs only 1 2 3 4 5 6 7 8 9 10		123456789	MN pH, Conductance	1 2 3 4 5 6 7 8 9 10	
SPECIAL REQUESTS Library Search (Qualitative) G	G Phenolics	123456789	# 2 CI, SO,, Total All	1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10	
Volatiles 1 2 3 4 5 6 7 8 9 10 G	P Phenolics (worst)) 10	1 2 3 4 5 6 7 8 9 10	
Other G		123456789	10 OG Oil & Grease	12345678910	
1 2 3 4 5 6 7 8 9 10	Amenable CN	123456789	9 10	-14 -14	
BOTTLE/ TESTS RELEASED BY / AFFILE	ATION	BECEIVER	BY/AFFILIATION	DATE & TIME	
in the state of th			ST. AFFILIATION	2-21-04	
in Obs		W 100	wag	101	



MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY ENVIRONMENTAL LABORATORY (517) 335-9800

P.O. Box 30270 Lansing, MI 48909

Report To: Surface Water Quality Div.

District #6

8015 S. 131 Road, Route #1

Cadillac, MI 49601

Attn: CHANSY VONGPHASOUK

Total:

\$162.90

Lab Work Order # 0101027

Work Site ID:

WR & S - 001

Matrix: Water

Received: 1/9/2001

Reported: 2/27/2001

Client: SWQ_CADILLAC

Number of Samples: 1

TEST	STATION 1		
UNITS			
Alkalinity of Water	179		
mg CaCO3/L			
Alkalinity - Bicarbonate	179		
mg CaCO3/L			
Alkalinity - Carbonate	K 5	,	
mg CaCO3/L			
Ammonia	4.8		
mg N/L			
Chloride in Water	2070		
mg/L			
COD	360		
mg/L			
Conductivity of Water	7170		
umho/cm			
Nitrate + Nitrite	0.1 DL		
mg N/L			
Nitrite	K .01 HT DM		
mg N/L			
Nitrogen - Kjeldahl	34		
mg N/L			
Ortho Phosphate	.14 HT DM		
mg P/L			
Phosphorus - Total	4.8		
mg P/L			
Solids - Suspended	A 94 NH		
mg/L	İ		
Solids - Total Dissolved	7700		
mg/L			
Sulfate in Water	385		
mg/L			
TOC	2000		
mg/L			

RECEIVED

MAR - 5 2001

SURFACE WATER QUALITY DIVISION CADILLAC DISTRICT OFFICE

Workorder 0101027, Page 1 of 2

Printed 2/27/01 2:07 PM

This is an original report: Law C Went Date: 2/28/4

PROCEDURE

NO: PD-13/Ver. 2

LABORATORY SERVICES SECTION DATE REV.:12/99

SUBJECT: Laboratory Result Remark Codes

EFFECTIVE DATE: December1999

- A value reported is the mean of two or more determinations.
- C value calculated from other independent parameters.
- J estimated value or value not accurate.
- K actual value is known to be less than the value given, i.e., substance, if present, is below detection limit.
- L actual value is known to be greater than the value given.
- T value reported is less than criteria of detection.
- W value observed is less than lowest value reportable under "T" code.
- DL sample analyzed using a dilution(s).
- DM dilution required due to matrix problems.
- HT recommended laboratory holding time was exceeded before analysis.
- LH QC indicated possible low recovery. Actual level may be higher.
- LL QC indicated possible high recovery. Actual level may be lower.
- MM analytical method or matrix is not within SOP of this laboratory.
- NC no confirmation by a second technique.
- NH non-homogeneous sample made analysis of a representative sample questionable.
- Pl possible interference may have affected the accuracy of the laboratory result.
- QC quality control problems exist.
- RB reagent blank. The level of reagent blank contamination is reported in the comment column and may be subtracted from the analyte value by the user.
- ST recommended sample collection/preservation technique not used.
- ACC laboratory accident resulted in no obtainable value.
- FCN free cyanide was not analyzed due to low level of total cyanide.
- INT interference encountered during analysis resulted in no obtainable value.
- IST improper sample collection/preservation. Sample not suitable for analysis.
- NAV requested analysis not available.
- QNS quantity not sufficient to perform requested analysis.
- STR settleable residue was not analyzed due to low suspended solids.

Approved by:

Bob Avery, Laboratory Director

DE

CHIGAN DEPT. OF ENVIRONMENTAL QUAL' ENVIRONMENTAL LABORATORY ANALYSIS REQUEST SHEET

LAH-ORDI		<u>/</u>				MATRIX=WATER
SUBMITTE DIVISION			MDEQ PROJ MANAGER &			ACCEPT HT CODES? YES / NO
<	on Addison	N.zt	:1 (Chansi	. Umanhe	mark 23175-39
LOCATION	N SAMPLED / SITE ID NUMBER	عمجين	<u> </u>	INDEX	PCA	PROJECT PH
WR	35 - MJ			374	00 424	600 480043 C
COLLECTI	ED BY		PHONE		ADDITIONAL REPORT	
SMA			(23) 175	4-7960 1	TO ATTENTION OF	
OVERFLO	OW CONTRACT LAB (Required for ERD)		<u>~</u>		AT (ADDRESS)	(If different than above office)
-				ا مادی	ſ`	·
	**** SAFETY INFORMATION	ON REC	OUIRED **	**	1	
	SEE BACK OF			!		
LAB USE			SAMPLE C	COLLECTED		COMMENTS
ONLY	M. M	!	DATE	TIME	 	
1	Station 1	'	15/351	H 10200		
2			1-3-01	/		
		 -	'	 		
3	 		 	 	-	
4						
5			<u> </u>	'	<u></u>	
6				Τ _		
				1		
7			+			
8			 	1		
9				<u> </u>		
10			·	T		
<u> </u>	ORGANIC	GE	NERAL CHE	FMISTRY		INORGANIC
VOA	VOLATILES (624/8260)	DO Diss		1 2 3 4 5 6 7 8		otal Metals 1 2 3 4 5 6 7 8 9 10
Full List	1 2 3 4 5 6 7 8 9 10				MAD Dist	iss-Field Filtered 1 2 3 4 5 6 7 8 9 10
BTEX/MT	TBE only 1 2 3 4 5 6 7 8 9 10	GN NO ₂ , Resid	z, o-Phos	1 2 3 4 5 6 7 8	• • • • • • • • • • • • • • • • • • • •	
ON	PESTICIDES/PCBS		idue TDS	1 2 3 4 5 6 7 8	8 9 10 Quantification	-
Pesticides	(608/8081/8082) s&PCBs 1 2 3 4 5 6 7 8 9 10		Tot Stay	1 2 3 4 5 6 7 8 1 2 3 4 5 6 7 8		EN METALS 12345678910 ad, Cr, Cu, Pb, Hg, Se, Ag, Zn)
Pesticides	only 1 2 3 4 5 6 7 8 9 10		Caros day	1 2 3 4 5 6 7 8	8 9 10 Fe Co Li	Mn 1234567891
PCBs only	y 1 2 3 4 5 6 7 8 9 10		 % 2	1/2345678	8 9 10 Al Be Mo B Sr	o Ti V 12345678910 12345678910
	PDES Only) 1 2 3 4 5 6 7 8 9 10	CA Chlor		12345678		
BNA	BASE NEUTRAL & ACIDS	GA COD		~~~		
BNAs	(625/8270) 1 2 3 4 5 6 7 8 9 10	GA COD TOC	1	7\2345678 1 2345678		
PNAs oni	1 2 3 4 5 6 7 8 9 10	NO3 -	+ NO2, NH3 1	1 2 3 4 5 6 7 8	8 9 10 Hardness	1 2 3 4 5 6 7 8 9 10
BNs only ACIDs or		KJEL	L N, Tot P	1 2 3 4 5 6 7 8		Conductance
	SPECIAL REQUESTS	********		1/2	X.	SO ₄ , Total Alk 1 2 3 4 5 6 7 8 9 1
Library Se	special Requests earch (Qualitative)	GG Pher		12345678	8 9 10 HCO ₃	0 ₃ ,CO ₃ (1)2 3 4 5 6 7 8 9 1
Volatiles	1 2 3 4 5 6 7 8 9 10	GP Pher	molics (APDES) I	12345678	8 9 10 Cr ⁺⁶	4234567891
Semivola Other	latiles 1 2 3 4 5 6 7 8 9 10	GB Total	al CN	12345678	8 9 10 OG Oil a	& Gresse 1 2 3 4 5 6 7 8 9 1
	1 2 3 4 5 6 7 8 9 10			12345678		
ſ	BOTTLE/		- 1			
ح ه ا	TESTS RELEASED BY / AF	FILIATION	1	RECEIV	VED BY / AFFILIATION	N DATE & TIME
Chain-of- Custody	NP			Krusan	- ANOM	2/11/9/01/94
ರೆ ರೆ	1) // -	<u> </u>		יישויש	10 mg	
1	2)		1	, 0		



MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY **ENVIRONMENTAL LABORATORY** (517) 335-9800

P.O. Box 30270 Lansing, MI 48909

Report To: Surface Water Quality Div.

District #6

8015 S. 131 Road, Route #1

Cadillac, MI 49601

Attn: CHANSY VONGPHASOUK

Total:

\$162.90

Lab Work Order # 0101027

Work Site ID: WR & S - 001

Matrix: Water

Client:

Received: 1/9/2001

SWQ_CADILLAC

Reported: 2/27/2001

Number of Samples: 1

TEST	STATION 1			
UNITS				
Alkalinity of Water	179			
mg CaCO3/L				
Alkalinity - Bicarbonate	179			
mg CaCO3/L				
Alkalinity - Carbonate	K 5 .			
mg CaCO3/L				
Ammonia	4.8			
mg N/L				
Chloride in Water	2070			
mg/L				
COD	360			,
mg/L				
Conductivity of Water	7170			
umho/cm				
Nitrate + Nitrite	0.1 DL			-
mg N/L		·		
Nitrite	K .01 HT DM			
mg N/L				
Nitrogen - Kjeldahl	34			
mg N/L				
Ortho Phosphate	.14 HT DM			
mg P/L				
Phosphorus - Total	4.8			
mg P/L				
Solids - Suspended	A 94 NH			
mg/L				
Solids - Total Dissolved	7700			
mg/L				
Sulfate in Water	385			
mg/L				
TOC	2000			
mg/L				
			ጎ	· · · · · - · · · · · · · · · · · · · ·

RECEIVED

MAR - 5 2001

SURFACE WATER QUALITY DIVISION CADILLAC DISTRICT OFFICE

Workorder 0101027, Page 1 of 2 Printed 2/27/01 2:07 PM This is an original report: Laur C Went Date: 2/28/4

NO: PD-13/Ver. 2

LABORATORY SERVICES SECTION DATE REV.:12/99

SUBJECT: Laboratory Result Remark Codes

EFFECTIVE DATE: December1999

- A value reported is the mean of two or more determinations.
- C value calculated from other independent parameters.
- J estimated value or value not accurate.
- K actual value is known to be less than the value given, i.e., substance, if present, is below detection limit.
- L actual value is known to be greater than the value given.
- T value reported is less than criteria of detection.
- walue observed is less than lowest value reportable under "T" code.
- DL sample analyzed using a dilution(s).
- DM dilution required due to matrix problems.
- HT recommended laboratory holding time was exceeded before analysis.
- LH QC indicated possible low recovery. Actual level may be higher.
- LL QC indicated possible high recovery. Actual level may be lower.
- MM analytical method or matrix is not within SOP of this laboratory.
- NC no confirmation by a second technique.
- NH non-homogeneous sample made analysis of a representative sample questionable.
- PI possible interference may have affected the accuracy of the laboratory result.
- QC quality control problems exist.
- RB reagent blank. The level of reagent blank contamination is reported in the comment column and may be subtracted from the analyte value by the user.
- ST recommended sample collection/preservation technique not used.
- ACC laboratory accident resulted in no obtainable value.
- FCN free cyanide was not analyzed due to low level of total cyanide.
- INT interference encountered during analysis resulted in no obtainable value.
- IST improper sample collection/preservation. Sample not suitable for analysis.
- NAV requested analysis not available.
- QNS quantity not sufficient to perform requested analysis.
- STR settleable residue was not analyzed due to low suspended solids.

Approved by:

Bob Avery, Laboratory Director

Date

DE

ENVIRONMENTAL LABORATORY ANALYSIS REQUEST SHEET

LAB ORD	ER# 0 - 0 - 0 2 '	/				MATRIX=WATER
SUBMITTI			DEQ PROJ ANAGER &			ACCEPT HT CODES?
Z. 30		٠. ١ . ١	(lacia	Illian ala	L 23175 291
LOCATION	N SAMPLED / SITE ID NUMBER	Listozi		INDEX	<u>Y VCYICAY)VIC</u> T <u>P</u> CAN	PROJECT PH
LOP	a C - M-1				00 420	00 480043 D
COLLECT	ED BY	PHO	NE	J 14	ADDITIONAL REPOR	
GMA				(B9/.A	TO ATTENTION OF	
<u>CIX</u>	W COLED ACT LAD (D		21 10	5-B960		
OVERPLO	W CONTRACT LAB (Required for ERD)			47 6267	AT (ADDRESS)	(If different than above office)
		ON BEOTH				
	**** SAFETY INFORMAT	-	KED ***	**		
LAB USE	SEE BACK O		AMME	OLLECTED		
ONLY	SAMPLE IDENTIFICATION		AMPLEC	TIME		COMMENTS
1	Station	74	V-3.61	10:00		
	BIACION I	750	War and	17700		
2		//	8-01			
3		/	5-01	MA		
4				'		
- 5						
7 1 to 1 1 1 1						
6				<u> </u>		· · · · · · · · · · · · · · · · · · ·
7						
383	·					
9	, .					
7 7 6 A.A.						
10	L.,			L		
	ORGANIC			MISTRY		INORGANIC
VOA Full List	VOLATILES (624/8260) 1 2 3 4 5 6 7 8 9 10	DO Diss Oxyge		2 3 4 5 6 7 8		al Metals 1 2 3 4 5 6 7 8 9 10 Field Filtered 1 2 3 4 5 6 7 8 9 10
BTEX/MT		GN NO2 o-Phor	ſ	2345678	9 10 MD Diss	-Lab Filtered 1 2 3 4 5 6 7 8 9 10
ON	PESTICIDES/PCBS	Residue SS Residue TD	s 1	2 3 4 5 6 7 8 2 3 4 5 6 7 8		n Limit High Low
	(608/8081/8082)		ليا ـ	2345678	9 10 MICH TE	N METALS 1 2 3 4 5 6 7 8 9 10
Pesticides de la Pestic		BOD Carb		2 3 4 5 6 7 8 2 3 4 5 6 7 8		l, Cr, Cu, Pb, Hg, Se, Ag, Zn) Mn 12345678910
PCBs only	1 2 3 4 5 6 7 8 9 10		_ 3	2345678	9 10 Al Be Mo	Ti V 1 2 3 4 5 6 7 8 9 10
	PDES ONLY****** PDES Only) 1 2 3 4 5 6 7 8 9 10	CA Chlorophytt		2345678	B Sr 9 10 Ni - Nickel	1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
BNA	BASE NEUTRAL & ACIDS		•••••	***************************************	Sb - Antimo	may 1 2 3 4 5 6 7 8 9 10
DNA	(625/8270)	GA COD TOC	13)	2345678		
BNAs PNAs only	1 2 3 4 5 6 7 8 9 10 y 1 2 3 4 5 6 7 8 9 10	NO3 + NO2	, NH3 1	2 3 4 5 6 7 8 2 3 4 5 6 7 8	•	1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
BNs only		KJEL N, To	P 1	2345678		A0242222000
ACIDs on			— w	2345678	, X	onductance 12 2 3 4 5 6 7 8 9 10 24. Total Alk 11 2 3 4 5 6 7 8 9 10
Library Sea	SPECIAL REQUESTS arch (Qualitative)	GG Phenolics	1	2345678		- 1 L
Volatiles		GP Phenolics (PDES) 1	2345678		42345678910
Semivolar Other	tiles 12345678910	GB Total CN		2345678	9 10 OG Oil A	Grease 1 2 3 4 5 6 7 8 9 10
	1 2 3 4 5 6 7 8 9 10	Amenable C		2345678		
^	BOTTLE/	 	 -		<u> </u>	
4	TESTS RELEASED BY / AI	FILIATION		RECEIVE	D BY / AFFILIATION	DATE & TIME
Chain-of- Custody	I I IXP	$oldsymbol{\zeta}$	1	Busan	A Norm	usch 1/9/01945
[បី ប៉ី	1) // -	<u> </u>			- Judy	
	2)			V		



MIC.

AN DEPT. OF ENVIRONMENTAL QUALIT ENVIRONMENTAL LABORATORY ANALYSIS REQUEST SHEET

SAFETY INFORMATION (MUST BE COMPLETED PRIOR TO SAMPLE SUBMITTAL)

1	Are sa	YES NO					
2	Are samples expected to be flamable? YES						
3	Are sa	mples ex	pected to be acidic (pH	l < 5)?		YES NO act	ld S
4	Are sa	mples ex	pected to be caustic (p	H > 8)?		YES NO	
5	Are sa	mples ex	pected to be a Biohaza	ard?		YES NO	
6	Are sa	ımples ex	pected to be reactive w	vith wate	r or acid?	YES NO	
7	7 Are samples expected to be radioactive? YES NO						
8	Are sa	imples ex	spected to contain dioxi	n?		YES NO)
9	Are sa	mples ex	rpected to be explosive	?		YES NO)
10	List ad	iditional s	suspected hazard inform	nation.			
	,	,	PRESERVATIVE T	RACKING	NUMBERS		
•	BOTTLE CODE	PRESER- VATIVE	PRESERVATIVE TRACKING NUMBER (FL NUMBER)	BOTTLE	PRESER- VATIVE	PRESERVATIVE TRACKING NUMBER (FL NUMBER)	
	VOA HCI FL- CA MgCO ₃					FL-	
	DO	WINKLER	FL-	HNO ₃	FL-		
	GA/GG H2504 FL-PF-041 OG H2504					FL-	
	GB	NaOH	FL-			FL-	
	s	ZnAC	FL-			FL-	
	S	NaOH	FL -			FL-	

ORES GT Co

BRANDT FISHER ALWARD & ROY, P.C. ATTORNEYS AT LAW

DONALD A. BRAND'I
JOSEPH C. FISHER
THOMAS R. ALWARD
HIDGAR ROY III
MATTHEW D. VERMETTEN
THOMAS A. PHYZETTI, JR.
VICKI P. KUNDINGER
JOHN M. GROGAN
JAMES R. MODRALL III
"Also Admitted in Illingis and Wisconsin

Traverse City Office:
401 Munson Avenue
P.O. Bux 5817
Traverse City, MI 49696-5817
(231) 941-9660
Faccimils (231) 941-9568
E-mail: ecoy@blaslaw.com

Raply To: Traverse City Office

Elli Rayida Office: 9060 North Bayalorii Drimi 1².O. Hox 576 Elli Rapida, MI 49629 (231) 264-5614 Fussimila (231) 264-5785

January 4, 2001

Via Facsimile

Tom Weston
Department of Environmental Quality
Waste Management Division
PO Box 30166
Lansing, MI 48909
(Facsimile: 517-373-4797)

Janice Hoyer
Department of Environmental Quality
120 W. Chapin Street
Cadillac, MI 49601
(Facsimile: 231-775-1511)

:: Williamsburg Receiving & Storage, Inc. Ground Water Discharge Permit

Dear Tom and Janice:

I am writing you concerning the status of review and issuance of the ground water discharge permit. I received a rough draft permit via facsimile on September 6. I note that Chris Hubbell was to provide you with additional information and I believe that occurred at least one month ago.

Within the next seven days, could you please advise as to the following:

- 1. Is there any specific information/documentation you need from Mr. Hubbell or myself at this juncture?
- 2. Has the draft permit been approved by the appropriate people in your department? If not, what work remains?
- 3. When can we expect to receive notice of the fact that the proposed permit has been publicized for public comment?

BRANDT FISHER ALWARD & ROY, P.C. ATTORNEYS AT LAW

January 4, 2001 Page 2

Your anticipated cooperation has been appreciated.

Sincerely,

BRANDT, FISHER, ALWARD & ROY, P.C.

Edgar Roy II

ER/ljd

cc Chris Hubbell

圈

67 Co

REPLY TO

LABORATORY SECTION DRINKING WATER & RADIOLOGICAL PROTECTION DIVISION 3350 N MARTIN L KING JR BLVD PO BOX 30270 LANSING MI 48909-7770

JOHN ENGLER, GOVERNOR DEPARTMENT OF ENVIRONMENTAL QUALITY

HOLLISTER BUILDING, PO BOX 30473, LANSING MI 48909-7973 RUSSELL J. HARDING, Director

TO:		House Vogslasonk
		RECEIVED
X	1.	Copy for your records. Surface water quality division capillac district office
	2.	Change in Analysis Request.
	3.	Other:
	·	•
	•	
		Sample Receiving Date
		Bldg. #44, Third Floor (Rm 303)

Telephone #: (517) 335-9800

(517) 335-9600

Fax#:

EQP 0100e (10/95)

DEQ

ENVIRONMENTAL LABORATORY ANALYSIS REQUEST SHEET

LAB ORDER # O -	<u>01-027</u>								MATRIX=WATER
	DISTRICT OR OFFICE		MDEQ PI MANAG				,		ACCEPT HT CODES? YES / NO
SWOD	Cadillaci	istr	id_	(Lhar		y box	ncriphasou	k ²³¹ 75-390
LOCATION SAMPLED / SI	TE ID NUMBER			٠.	IND		i	PCAW PRO	JECT PH
WK2 5 -	001				37	4	00	42600	·480043 0
COLLECTED BY			PHONE					NAL REPORT	
CN .			(23)7	7 <u>5</u>	376	O		NTION OF	
OVERFLOW CONTRACT	LAB (Required for ERD)				CKTUS	767	AT (ADD	RESS) (If diffe	rent than above office)
									
SAFI	ETY INFORMATION SEE BACK OF F		UIKED		· *				
LAB USE		UKW	SAMOT	E CC	LLECTED	\dashv			
ONLY	MPLE IDENTIFICATION		DATE	Ĩ	TIME			COMM	ENTS
1 Station	2.1		16/3/	57	10:00	\mathcal{D}^{1}			Α.
2			1-3-	(2)	,,,,,		Da	h :	N. 4 C.
			<u>/</u>	-4			שעיי	15 Wr	0/19:1
3			· · · · · ·	-	 -		Samy	ta is wr plas take to lab 1/	n 7/5/01
4				4			. L	h 1.10 11	
5							sent s	ao lado 11	8/01
6		· .		- [SV	
7						Τ,		1	
15.5 7				\exists	•				
8				-			···		
9 30 1									
10			·						
ORGANIC			ERAL C						ORGANIC .
VOA VOLATILES (62 Full List 1 2	24/8260)	OO Diss ()xygen	1 :	23456	78	9 10	MA Total Metals MAD Diss-Field Filte	1 2 3 4 5 6 7 8 9 10 red 1 2 3 4 5 6 7 8 9 10
	_	3N NO₂		M	2 3 4 5 6				nd 1 2 3 4 5 6 7 8 9 10
ON PESTICIDES/PC	æs	Residu Residu	e SS e TDS		23456 23456			Quantification Limit	High Low
(608/8081/808 Pesticides & PCBs 1 2	2) ! 3 4 5 6 7 8 9 10		Tot Stay	W	23456	78	9 10 9 10	MICH TEN METAL (As, Bs, Cd, Cr, Cu, P	LS 1 2 3 4 5 6 7 8 9 10
Pesticides only 1 2	2 3 4 5 6 7 8 9 10	•	ard siday	Z i[23456	7 8		Fe Co Li Mn	1 2 3 4 5 6 7 8 9 10
PCBs only 1 2	! 3 4 5 6 7 8 9 10 Y******			W.	23456	78	9 10	Al Be Mo Ti V B Sr	1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Scan 3 (NPDES Only) 1 2		CA Chlore	phyli	1 2	2 3 4 5 6	7 8	9 10	Ni - Nickel	1 2 3 4 5 6 7 8 9 10
BNA BASE NEUTRA (625/8270)		GA COD		PD 1	23456		0 10	Sb - Antimony Tl - Thallium	1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
BNAs 1 2	3 4 5 6 7 8 9 10	TOC			23456			Ca Mg Na K	1 2 3 4 5 6 7 8 9 10
-	2 3 4 5 6 7 8 9 10 2 3 4 5 6 7 8 9 10		NO2, NH3 V, Tot P		23456 23456			Hardness	1 2 3 4 5 6 7 8 9 10
=	3 4 5 6 7 8 9 10				23456			MN Conductance	A 2345678910
	LEQUESTS	····	••••••••••••••••••••••••••••••••••••••						Jk 1 2 3 4 5 6 7 8 9 10
Library Search (Qualitative) Volatiles 1 2		GG Pheno GP Pheno			23456 23456			HCO ₃ ,CO ₃ Cr ⁴⁶	1 2 3 4 5 6 7 8 9 10
Semivolatiles 1 2 Other		GB Total C			23456			OC 07 5 C	1 2 3 4 5 6 7 8 9 10
	2345678910	Amena			23456			OG Oil & Gresse	12343678910
BOTTLE/				Т		_			
TESTS	RELEASED BY / AFFIL	IATION		╄,	REC	EĮVE	DBY/AF	FILIATION	DATE & TIME
Chaten D TESTS	UPS	<u> </u>		}	SUNO	m	De	lepauso	11/4/945
				Τ	1				
				L					



MIC:

AN DEPT. OF ENVIRONMENTAL QUALIT ENVIRONMENTAL LABORATORY ANALYSIS REQUEST SHEET

SAFETY INFORMATION (MUST BE COMPLETED PRIOR TO SAMPLE SUBMITTAL)

1		mples ex es, at wha	YES	NO				
2	Are sa	YES	NO					
3	Are sa	mples ex	pected to be acidic (pl	l < 5)?	·	YES	NO A	
4	Are sa	ımples ex	pected to be caustic (p	H > 8)?		YES	NO	
5	Are sa	mples ex	spected to be a Biohaza	ard?		YES	(NO)	
6	Are samples expected to be reactive with water or acid? YES NO							
7	7 Are samples expected to be radioactive? YES							
8	8 Are samples expected to contain dioxin? YES NO							
9	Are samples expected to be explosive? YES NO							
10	List ad	iditional s	suspected hazard inforr	nation.				
			PRESERVATIVE 1	RACKING	NUMBERS			
•	BOTTLE	PRESER- VATIVE	PRESERVATIVE TRACKING NUMBER (FL NUMBER)	BOTTLE CODE	PRESER- VATIVE	PRESERVATIVE TR NUMBER (FL NUMBER		
	VOA	HCI	FL-					
	VOA HCI FL- CA MgCO ₃ FL- DO WINKLER FL- MAMAD HNO ₃ FL-							
	GAIGG H2SO4 FL-PF-041 OG H2SO4 FL-							
	GB	NaOH	FL-			FL-		
	s	ZnAC	FL-			FL-		
	s	NaOH	FL-			FL-		



MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY ENVIRONMENTAL LABORATORY (517) 335-9800

WRS. S GTCO.

P.O. Box 30270 Lansing, MI 48909

Report To: Environmental Response Div.

District #6

120 W Chapin Street

Cadillac, MI 49601

Attn: CHANSY-VONGPHASOUK/

Total:

\$348.54

Lab Work Order # 0102095

Work Site ID:

WILLIAMSBURG REC.&STORAGE

Matrix: Water

Received: 2/21/2001

Reported: 3/16/2001

Client: ER_CADILLAC Number of Samples: 2

TEST	OUTFALL 1	SUMP 2	
UNITS			
Alkalinity of Water	101	86	
mg CaCO3/L			
Alkalinity - Bicarbonate	101	86	
mg CaCO3/L			
Alkalinity - Carbonate	K 5	K 5	
mg CaCO3/L			
Ammonia	1.1	1.1	
mg N/L			
Chloride in Water	166	QNS	
mg/L			
COD - Titrimetric	1900	2000	
mg/L			
Conductivity of Water	1029	1215	
umho/cm			
Hex Chromium in Water	INT	INT	
ug/L	·		
Nitrate + Nitrite	K 0.1 DL	K 0.1 DL	
mg N/L			
Nitrite	K .1 DL HT	K .1 DL HT	
mg N/L			
Nitrogen - Kjeldahl	17	17	
mg N/L			
Ortho Phosphate	1.3 HT	1.7 HT	
mg P/L			
Phosphorus - Total	2.6	2.5	
mg P/L			
Solids - Suspended	47	40	
mg/L			RECEIVED
Solids - Total Dissolved	1400	1900	
mg/L			
Sulfate in Water	176	QNS	MAR 2 2 2001
mg/L			
TOC	710 DL	720 DL	SURFACE WATER QUALITY DIV
mg/L		,2022	CADILLAC DISTRICT OFFIC

This is an original report:		Date:	

NO: PD-13/Ver. 2

LABORATORY SERVICES SECTION DATE REV.: 12/99

SUBJECT: Laboratory Result Remark Codes

EFFECTIVE DATE: December1999

- A value reported is the mean of two or more determinations.
- C value calculated from other independent parameters.
- J estimated value or value not accurate.
- K actual value is known to be less than the value given, i.e., substance, if present, is below detection limit.
- L actual value is known to be greater than the value given.
- T value reported is less than criteria of detection,
- W value observed is less than lowest value reportable under "T" code.
- DL sample analyzed using a dilution(s).
- DM dilution required due to matrix problems.
- HT recommended laboratory holding time was exceeded before analysis.
- LH QC indicated possible low recovery. Actual level may be higher.
- LL QC indicated possible high recovery. Actual level may be lower.
- MM analytical method or matrix is not within SOP of this laboratory.
- NC no confirmation by a second technique.
- NH non-homogeneous sample made analysis of a representative sample questionable.
- Pl possible interference may have affected the accuracy of the laboratory result.
- QC quality control problems exist.
- RB reagent blank. The level of reagent blank contamination is reported in the comment column and may be subtracted from the analyte value by the user.
- ST recommended sample collection/preservation technique not used.
- ACC laboratory accident resulted in no obtainable value.
- FCN free cyanide was not analyzed due to low level of total cyanide.
- INT interference encountered during analysis resulted in no obtainable value.
- IST improper sample collection/preservation. Sample not suitable for analysis.
- NAV requested analysis not available.
- QNS quantity not sufficient to perform requested analysis.
- STR settleable residue was not analyzed due to low suspended solids.

Approved by:

Bob Avery, Laboratory Director

Date

· Di			ENVIRONME		-	•	•	•
		22 (19)	_	REQUEST SH			• •	
LAB ORD		DISTRICT (I.C.C.)) MDEQ PRO	DIFCT		MA	TRIX=WATER ACCEPT HT CODES?	
DIVISION	er	OR OFFICE COOL		R & PHONE			YES/NO	
Chai	154	Vonadiuson	<u> </u>	374	100 420	000 48	0043 01	
LOCATION	N SAMPUED	SITE ID NUMBER	Ċ	INDEX	PCA	PROJEC	T PH	
	rms0	ung Receiver		rage				1
COLLECT			PHONE	0	ADDITIONAL RE	•		
	nsu	V 6 v 9 ON USE	10 63h77	70 -	TO ATTENTION			
OVERFLO	W CONTRA	CT LAB (Required for ERD)	•	WHAZE	AT (ADDRESS)	(If differen	t than above office)	
	4446	CCTV (AICODALLT)	ON BEOLUBED					
	34 34	AFETY INFORMATION SEE BACK OF	_					
LAB USE		SAMPLE IDENTIFICATION		COLLECTED		COMMENT	re	
ONLY	4	SAMPLE IDENTIFICATION	DATE	TIME	 	COMMEN	, ,	
	01 of Fe	d 1	2//1/0/0	1 11:00	HSDN	sddod	2/20/01	
2	Sunn	2 2	2/16/0	11:15	1009	ac vice	Lab acciden	+ GN boil
3	,						Shared GW-1	DN MIL
1								1 1
							· 	و انظر
5					 			
-	<u> </u>			_				
7	 							
8	ļ			<u> </u>			· · · · · · · · · · · · · · · · · · ·	
9	<u> </u>	·					·	
10							·	ļ
<u> </u>	ORGA	NIC	GENERAL CH	IEMISTRY		INOI	RGANIC	•
VOA	VOLATILE	S (624/8260) 1 2 3 4 5 6 7 8 9 10	DO Diss Oxygen	1234567		Total Metals	1 2 3 4 5 6 7 8 9 10	•
Full List BTEX/MT	TBE only	1 2 3 4 5 6 7 8 9 10	GN NO _{h o-Phee}	1234567	8 9 10 MD	Diss-Field Filtered Diss-Lab Filtered	1 2 3 4 5 6 7 8 9 10	
	PESTICIDE	S/PCBS	Residue SS Residue TDS	1 2 3 4 5 6 7	8 9 10 8 9 10 Quant	ification Limit	High Low	
Pesticides	(608/808)		BOD Tot 5 day	1234567	MIC	H TEN METALS Ba, Cd. Cr. Cu, Fb. H	1 2 3 4 5 6 7 8 9 10	
Pesticides	only	1 2 3 4 5 6 7 8 9 10	BOD Carb 5 day	1234567	8 9 10) Fe C	o Li Mn	1 2 3 4 5 6 7 8 9 10	
	*** NPDES	1 2 3 4 5 6 7 8 9 10 ONLY*****	******************************	1234567		e Mo Ti V	1 2 3 4 5 6 7 8 9 10	
***********	************	1 2 3 4 5 6 7 8 9 10	CA Chlorophyll	1234567		liekol	1 2 3 4 5 6 7 8 9 10	•
BNA	(625/83	TRAL & ACIDS 170)	GA COD		_ 1.	Untimony Thallium	1 2 3 4 5 6 7 8 9 10	
BNAs PNAs onl		12345678910	TOC NO3 + NO2, NH3	1 2 3 4 5 6 7	8 9 10 Ca M 8 9 10 Hards	ig Na K	1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10	
BNs only	•	1 2 3 4 5 6 7 8 9 10	KJEL N, Tot P	34567	8 9 10		***********	,
ACIDs or		1 2 3 4 5 6 7 8 9 10				pH, Conductance Cl. SO ₄ , Total Alk,	12345678910	
	arch (Qualita	tive)	GG Phenolics	1234567	8 9 10	HCO31CO3	1 2 3 4 5 6 7 8 9 10	
Volatiler Semivel		12345678910	GP Phenolics (19083)			Cr*	1 2/3 4 5 6 7 8 9 10	
Other		12345678910	GB Total CN Amenable CN	1234567	8 9 10 OG	Oil & Gresse	1 2 3 4 5 6 7 8 9 10	
		→ 2 ^m			U 7 10		٧ .	9
پ	BOTTLE/ TESTS	RELEASED BY / AF	FILIATION	RECEIV	ED BY / AFFILIAT	ПОМ	DATE & TIME	
Chala-of- Custody	[1,105		OTH	11/10		2-21-01	
1 3 3	 				roug		10	
1	1	2)			V			1



MICHIGAN DEPT. OF ENVIRONMENTAL QUALITY ENVIRONMENTAL LABORATORY ANALYSIS REQUEST SHEET

SAFETY INFORMATION (MUST BE COMPLETED PRIOR TO SAMPLE SUBMITTAL)

					•				· / . \
1		•	pected to co	ontain cyan	ide (CN)?	,	•	YES	(NO)
	If ye	es, at wha	at level?		·				
2	Are sa	YES	NO						
3	Are sa	mples ex	pected to be	e acidic (ph	l < 5)?			YES	NO
4	Are sa	mples ex	pected to be	e caustic (p	H > 8)?			YES	NO
5	Are sa	mples ex	pected to be	e a Biohaza	ard?			YES	(6)
6	Are sa	mples ex	pected to be	e reactive w	vith water	or acid?	•	YES	NO
7	Are sa	mples ex	pected to be	e radioactiv	e?			YES	(NO)
.8	Are sa	mples ex	pected to co	ontain dioxi	n? .		•	YES	NO
9	Are sa	mples ex	pected to be	e explosive				YES	(NO
10	List ad	lditional s	suspected ha	azard inform	nation.			•.	
	• •				·				
								·	
•			PRE	SERVATIVE 1	RACKING	NUMBERS			
	BOTTLE	PRESER- VATIVE	PRESERVATIV NUM (FL NU	:	BOTTLE	PRESER- VATIVE	PRES	ERVATIVE TR NUMBER (FL NUMBER	
	VOA	HCI	FL-	w d	CA	MgCO ₃	FL-		
-	DO 1	WINKLER	FL-		MAMAD	HNO ₃	FL-	50.8 Jan 2008	
1 4 6 5 7 9	GA/GG	H₂SO₄		\$ 0 . 2 . \$	og	H ₂ SO ₄	$_{\sf FL}$. $ ho$	F-041	a in None
	GB	NaOH	FL-				FL-		
e percentage	s	ZnAC	FL-	· ·	. Tinche se	\$.	FL-		
	s	NaOH	FL-			<u> </u>	FL-	and a	and the

WRIS GT Co.

2/16/01

Attn: Sy Vongphasouk DEQ-SWQD Department of Environmental Quality 120 West Chapin Cadillac, MI 49601

Dear Sy:

We are submitting in writing an explanation of the 02-16-01 accidental water discharge that occurred.

We monitor our discharge system twice daily and were unaware that there was a problem with the system until our inspection of 02-16-01. Upon inspection we discovered that the pumps were not operating. The pump motors were submersed in water and therefore were not operating.

We have developed a monitoring sheet to document our daily inspection of the water discharge system to aid our efforts in controlling all water discharge effectively and efficiently.

Sincerely,

Chris Hubbell-President

Williamsburg Receiving & Storage LLC

RECEIVED

MAR - 8 2001

SURFACE WATER QUALITY DIVISION CADILLAC DISTRICT OFFICE

Majled 2.19-01

SUPPLEMENTAL LETTER

3/7/01

Attn: Sy Vongphasouk DEQ-SWQD Department of Environmental Quality 120 West Chapin Cadillac MI 49601

Dear Sy:

This is a supplemental letter to the letter dated 02-16-01 which we wrote to you regarding the accidental discharge of water on 02-16-01 and 02-17-01.

The cause of the discharge was a failure of our pumps in our sump system. The pumps had stopped operating which caused our sump to fill with water allowing accidental discharge of water into the Ptebeco swamp pipeline. As soon as we were aware of this problem we replaced the damaged pumps and pumped the balance of the standing water that had accumulated in our sump up into our holding pond. Unfortunately the concerned citizen that called PEAS did not also call us so that repairs could have been made immediately upon his or her discovery.

The period of time that was involved was some time in the late evening of 02-16-01 and the system was repaired and operating correctly by mid-day 02-17-01 which was within two hours of our awareness of the discharge.

The description of the discharge is waste water from our pitting plant operation.

The pumps have been replaced with new pumps and we do not anticipate this happening again.

Sincerely,

Chris Hubbeli-President

Williamsburg Receiving & Storage LLC

file WR+5

To: Subject: Date:	PCS Unit SWQD DATA ENTRY FOR SCHEDULED INSPECTIONS 3/1/01							
Surface Wate Cadillac Distri	r Quality Division ct Office							
<<<=========	======== TOP OF FORM ===========>>>>							
	A ENTRY FOR SCHEDULED INSPECTIONS - Surface Water Quality Division							
PERMIT NUMBE	DISTRICT: C DISTRI							
DATE OF INSPE	MM DD YY CTION (DTIN): _3_/_1_/_01_ (Date field work completed)							
DATE REPORT	TRANSMITTED (DTRR):/ (Date FINAL report transmitted)							
** DATE FOR TR	RANSMITTAL (RDI2):/ (Not required for Recons)							
COMMENTS (IC	OM):							
date for transm time between ir should be estal	eport has not been transmitted to the facility, a scheduled itting it MUST be entered into PCS. The shortest reasonable aspection field work completion and final report transmittal olished, and no schedule should extend beyond the following thout adaquate justification:							
CEI (C)-30 day	S CSI (S)-90 days CXI (X)-120 days (D)-30 days							
Justification for e	xtending the report transmission schedule:							
2) If the report tra	our data entry person in PCS Unit ansmitted date cannot be entered at that time, project date (RDI2) and enter that date also.							
was any discharge opening for the dis	NTS: _On-site for a follow up inspection on the February notice letter to check if there is from the sump into Tobeco swamp. The level in the sump was very low & below the scharge of contact cooling waters. Spoke with Chris regarding how the problem could be with the manufacture of the pump and have come up with a new design.							
	PCS 10/97							

WILLIAMSBURG RECEIVING & STORAGE LLC 10190 Munro Road Williamsburg, MI 49690



ATTN: SY VONGPHASOUK DEQ-SWQD DEPARTMENT OF ENVIRONMENTAL QUALITY 120 WEST CHAPIN CADILLAC MI 49601





STATE OF MICHIGAN



REPLY TO:

LABORATORY SECTION DRINKING WATER & RADIOLOGICAL PROTECTION DIVISION 3350 N MARTIN L KING JR BLVD PO BOX 30270 LANSING MI 48909-7770

JOHN ENGLER, Governor DEPARTMENT OF ENVIRONMENTAL QUALITY

HOLLISTER BUILDING, PO BOX 30473, LANSING MI 48909-7973 RUSSELL J. HARDING, Director

O:		Krisy Torakasi	Disk
			RECEIVED
]	1.	Copy for your records.	FEB 2 6 2001
]	2.	Change in Analysis Request.	SURFACE WATER QUALITY DIVISION CADILLAC DISTRICT OFFICE
}	3.	Other: Mease note we are CN & Mn bottle for the shis with not be a p	sharing the sump. Hopefu
	·		

Sample Receiving

Bldg. #44, Third Floor (Rm 303)

Telephone #: (517) 335-9800

Fax #:

(517) 335-9600

D	EQ) _	ENVIRONME:			
LAB ORD	·	ma -(1)95	S ANALISIS H	REQUEST SHE	.e.i	MATRIX=WATER
SUBMITTI		DISTRICT CECL	MOEQ PRO MANAGER	JECT & PHONE		ACCEPT HT CODES?
Cha	nsu l	onaduson	k "		00 42600.	480043 01
LOCATIO	N SAMPLED	SITE ID NUMBER		INDEX	PCA P	ROJECT PH
<i>10}lliu</i>	amsbu	wa Kecuvu		rage	·	
COLLECT	ED BY		PHONE		ADDITIONAL REPORT	
	insu	V 6 V GADNUSER	(C) 63h77:		TO ATTENTION OF	
OVERFLO	OM CONTINA	T LAB (Required for ERD)		WY 6267	AT (ADDRESS) (If d	ifferent than above office)
	**** SA	FETY INFORMATION	-	***		
LAB USE		SEE BACK OF		COLLECTED	· 	
ONLY	1	SAMPLE IDENTIFICATION	DATE	TIME	CON	IMENTS
	ort fa	<i>l</i>	2/16/01	11:00	1/50 and	1 2/20/01
2	Sunr	, 2	2/110/0	111:15	1 Dond-mag	Lab acc. dent GN
3	,		17.7			Shared GN-MN 1
4						
	 			-		<i>∂- i</i>
5	<u> </u>			 		
6	ļ <u>.</u>					
7				 		
8		· · · · · · · · · · · · · · · · ·		<u> </u>		
9	,					<u></u>
10						
	ORGA	VIC	GENERAL CH	EMISTRY		INORGANIC
VOA	VOLATILES	(624/8260) 1 2 3 4 5 6 7 8 9 10		12345678		
Full List BTEX/MI	TBE only	1 2 3 4 5 6 7 8 9 10	GN NO ₃ e-Phos	12345678	9 10 MAD Diss-Fleid 9 10 MD Diss-Lab F	Filtered 1 2 3 4 5 6 7 8 9 10
	PESTICIDES	······································	Residue SS Residue TDS	1 2 3 4 5 6 7 8	9 10 Quantification Limi	t High Low
Pesticides	(608/8081/	8082) 1 2 3 4 5 6 7 8 9 10	BOD Tot 5 day	12345678	// X	TALS 1 2 3 4 5 6 7 8 9 10 u, Pb, Hg, Se, Ag, Zn)
Pesticides	only	1 2 3 4 5 6 7 8 9 10	BOD Carb 5 day	12345678	9 10) Fe Co Li Mn	1 2 3 4 5 6 7 8 9 10
PCBs only	' ••• NPDES O	l 2 3 4 5 6 7 8 9 10 NLY*****	***************************************	12345678	7	1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
	************	1 2 3 4 5 6 7 8 9 10	CA Chlorophyll	12345678		1 2 3 4 5 6 7 8 9 10
BNA	(625/82)	TRAL & ACIDS 70)	GA COD	12345678	9 10 TI - Thallium	1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
BNAs PNAs onl		1 2 3 4 5 6 7 8 9 10	TOC NO3 + NO2, NH3	1 2 3 4 5 6 7 8	9 0 Ca Mg Na K 9 10 Hardness	1 2 3 4 5 6 7 8 9 10
BNs only	•	1 2 3 4 5 6 7 8 9 10	KJEL N, Tot P	1 2 3 4 5 6 7 8	9 10	•••••
ACIDs or		1 2 3 4 5 6 7 8 9 10		12345678	1 10	
Library Se	376C17 arch (Qualitati	VL REQUESTS (ve)	GG Phenolics	12345678	# 2 CI, SO., To 9 10 HCO,,CO,	MARK 1 2 3 4 5 6 7 8 9 10
Volatiler Seraivol		1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10		12345678	9 10., Cr4	1 2 3 4 5 6 7 8 9 10
Other			GB Total CN	12345678		e 12345678910
		1 2 3 4 5 6 7 8 9 10	Amenable CN	12345678	9 10	
	BOTTLE/ TESTS	RELEASED BY/AF	FILIATION	RECEIVE	D BY / AFFILIATION	DATE & TIME
2 g		1,05				2-21-06



MICH'GAN DEPT. OF ENVIRONMENTAL QUALITY ENVIRONMENTAL LABORATORY ANALYSIS REQUEST SHEET

SAFETY INFORMATION (MUST BE COMPLETED PRIOR TO SAMPLE SUBMITTAL)

1.		mples exp es, at wha		YES	(NO)			
2	Are sa	mples exp		YES	NO			
3.	Are sa	mpies ex	pected to be acidic (pH	< 5)?			YES	NO
4	Are sa	mples ex	pected to be caustic (p	H > 8)?			YES	(NO)
5	5 Are samples expected to be a Biohazard? YES NO							
6	6 Are samples expected to be reactive with water or acid? YES NO							NO
7	7 Are samples expected to be radioactive?							(NO)
8	8 Are samples expected to contain dioxin? YES							NO
9	Are sa	mples ex	pected to be explosive	?	•		YES	(NO
10	List ad	ditional s	uspected hazard inform	nation.				·
			PRESERVATIVE T	BACKING	NIMBEDS	-,,		
!	BOTTLE	PRESER- VATIVE	PRESERVATIVE TRACKING NUMBER (FL NUMBER)	BOTTLE	PRESER- VATIVE	1	/ATIVE TR NUMBER . NUMBER	j
	VOA	HCI	FL-	CA	MgCO ₃	FL-		
	DO	WINKLER	FL-	MAMAD	HNO ₃	FL-		
	GA/GG	H ₂ SO ₄	FL-	OG .	H₂SO₄	FL-PF	2041	1.0
	GB	NaOH	FL-			FL-	-	
	s	Znac	FL-			FL-		
	s	NaOH	FL-			FL-	21.11 21.	Alteria

DE			ENVIRONME			Y		•
	701	22-(19)	ANALYSIS I	REQUEST SH	EET			
LAB ORDE		DISTRICT (1::C)) MDEQ PRO)IECT		M.	ATRIX=WATER [ACCEPT HT CODES?	-
NOISIAID	•	OR OFFICE	MANAGER	& PHONE			YES/NO	-
Char	154 K	ongDiuson	<u>k </u>		00 4	7600 4/8		_
LOCATION	SAMPJED/	SITE ID NUMBER	S. S.	INDEX	PCA	N PROJI	ECT PH	
COLLECTE	WSDL	ug Kechur	10 PHONE	rage	ADDITIONAL	DEDVIOT		7
01		O andres	W)	5-3960	TO ATTENT			
	NSU CONTRAC	T LAB (Required for ERD)	100 111	160 TUSTER	}		ent than above office)	1
OVERPLOY	w contingio	TEXE (made) to 101 and)		W1 4567	i (ADOKE	is) (ii dilici c	in a lan above onice)	
	**** SA	FETY INFORMATI	ON REQUIRED *	***	-			1
ļ		SEE BACK OF	_		-	·		1
LAB USE	S	AMPLE IDENTIFICATION	SAMPLE DATE	COLLECTED		COMME	NTS	1
ONLY	-18	// ,	2/110/2	/ //:0D	1100	11	1 0/00/1	1
	OLU Sa	7	34/4/0		H38	4 added	2/20/01	40016
2	Sunp) de	2/10/0	1 11:15	 	·		t CN boil
3			 				Shared GN-	ANN DMIT
1						·		2/21/0
5								1 ' '
6	·							_
,								_
8								7
,								7
10								7
	ORGAN	VIC .	GENERAL CH	EMISTRY	<u> </u>	INC	DRGANIC	_
VOA	VOLATILES	(624/8260)	DO Diss Oxygen	1234567	•	MA Total Metals	12345678910	
Full Li≠ BTEX/MT		1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10	GN NO ₃ , o-Phos	1234567			nd 2345678910 	
	PESTICIDES	/PCRS	Residue SS Residue TDS	1 2 3 4 5 6 7	•-	Quantification Limit	High Low	
	(608/8081/	6082)		1234567	10	MICH TEN METAL	S 1 2 3 4 5 6 7 8 9 10)
Pesticides : Pesticides :	anly	1 2 3 4 5 6 7 8 9 10	BOD Carb 5 day BOD Carb 5 day	1234567	8 9 10	(As, Ba, Cd, Cr, Cu, Pb, Fe Co Li Mn	1 2 3 4 5 6 7 8 9 10	
PCBs only	· · · NPDES 0	(2345678910 NLY*****	***************************************	1234567	· · · · ' '	Al Be Mo Ti V B Sr	12345678910	
	***************************************	1 2 3 4 5 6 7 8 9 10	CA Chlerophyll	1234567	11	Ni • Nickal	12345678910	•
BNA	(625/82)		GA COD		1	Sb - Antimony T1 - Thallium	12345678910	
BNAs PNAs oni		12345678910	TOC '	1 2 3 4 5 6 7	1	Ca Mg Na K Hardness	12345678910	
BNs only	•	1 2 3 4 5 6 7 8 9 10	KJEL N, Tot P	COMP	8 9 10	•		•••
ACIDs on		L REQUESTS	*************************			MN pH, Conductance Cl. SO., Total Al		
	arch (Qualitati	ive)	GG Phenolics	1234567	8 9 10	HCO,,CO,	1 23 4 5 6 7 8 9 10	3
Volatiles Semivols		1 2 3 4 5 6 7 8 9 10	GP Phenolics (worzs)	•••••		Cr*	1 2 4 5 6 7 8 9 10	
Other		1 2 3 4 5 6 7 8 9 10	GB Total CN Amenable CN	1234567		OG Oil & Grense	1234567891	0
	BOTTLE/		:				: 1	-1 :
ر ق د ق	TESTS	RELEASED BY / A	FILIATION	RECEIV	ED BY / AFFI	LIATION	DATE & TIME	4
Chain-of- Custody	<u> </u> -	1, ()PS		WHO	Ma	_	2-21-01	
00					7			
3	1	12)		i			1	1



MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY ENVIRONMENTAL LABORATORY (517) 335-9800

Williamsburg receiving

P.O. Box 30270 Lansing, MI 48909

Report To: Surface Water Quality Div.

District #6

8015 S. 131 Road, Route #1

Cadillac, MI 49601

Attn: CHANSY VONGPHASOUK

Total:

\$162.90

Lab Work Order # 0101027

Work Site ID:

SWQ_CADILLAC

Matrix:

Client:

WR & S - 001

Water

Received: 1/9/2001

Reported: 2/27/2001

Number of Samples: 1

TEST	STATION 1	
UNITS		
Alkalinity of Water	179	
mg CaCO3/L		
Alkalinity - Bicarbonate	179	
mg CaCO3/L	!	
Alkalinity - Carbonate	K 5	
mg CaCO3/L		
Ammonia	4.8	
mg N/L		
Chloride in Water	2070	
mg/L		
COD	360	
mg/L		
Conductivity of Water	7170	
umho/cm		
Nitrate + Nitrite	0.1 DL	
mg N/L	:	
Nitrite	K .01 HT DM	
mg N/L		
Nitrogen - Kjeldahl	34	
mg N/L	:	
Ortho Phosphate	.14 HT DM	
mg P/L		
Phosphorus - Total	4.8	
mg P/L	;	
Solids - Suspended	A 94 NH	
mg/L		
Solids - Total Dissolved	7700	
mg/L	ļ ļ	
Sulfate in Water	385	
mg/L		
TOC	2000	
mg/L		

RECEIVED

MAR - 5 2001

SURFACE WATER QUALITY DIVISION CADILLAC DISTRICT OFFICE

Workorder 0101027, Page 1 of 2 Printed 2/27/01 2:07 PM

FLOW MONITORING

Williamsburg Receiving and Storage Facility Name 1	Date
GW283450	

ID Number

INFLUENT FLOW

Sample Location	Sampling Frequency	Limit (gallons)	Daily Maximum Flow	Monthly Average Flow	Cumulative Year to Date Flow	Number of Limit Exceedances

EFFLUENT FLOW

Sample Location	Sampling Frequency	Limit (gallons)	Daily Maximum Flow	Monthly Average Flow	Cumulative Year to Date Flow	Number of Limit Exceedances
EF-1	Daily	42,000 gpd				
EF-1	Annual	15.3 mgy				

SPRING & SUMMER IRRIGATION SEASON

Williamsburg Receiving and Storage Facility Name 1	Date
GW283450 ID Number	

LAND APPLICATION

Sample Location	Sampling Frequency	Limit: (in/day) (in/week) (in/month)	Daily Maximum Application Rate (inches)	Weekly Maximum Application Rate (Inches)	Cumulative Year Application (Inches)	Number of Limit Exceedances
LA-1	Daily	0.09 in/day				
LA-1	Weekly	0.63 in/wk				
1-11						
						-

INFLUENT QUALITY

Facility Name 1	Date
ID Number	

Sample Location	Sampling Frequency	Parameter	Units	Limit	Maximum Concentration	Monthly Average	Number of Limit Exceedances

EFFLUENT QUALITY

Williamsburg Receiving & Storage Facility Name 1

Date

GW283450 ID Number

Sample Location	Sampling Frequency	Parameter	Units	Limit: Rule 2227	Limit: Rule 2228	Maximum Concentration	Monthly Average	Number of Limit Exceedances
EQ-1	Monthly	Tot. Inorganic Nitrogen	mg/l	5				
EQ-1	Monthly	Ammonia Nitrogen	mg/l					
EQ-1	Monthly	Nitrate Nitrogen	mg/l				<u> </u>	
EQ-1	Monthly	Nitrite Nitrogen	mg/l					
EQ-1	Weekly	Specific Conductance	Umho s					
EQ-1	Monthly	Sulfate	mg/l	250				
EQ-1	Monthly	Sodium	mg/l	150				
EQ-1	Monthly	Chloride	mg/l	250				
EQ-1	Monthly	Tot. Phosphorus	mg/l	1				



MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY ENVIRONMENTAL LABORATORY (517) 335-9800

P.O. Box 30270 Lansing, MI 48909

Report To: Waste Management Division

120 W. Chapin Street

Cadillac, MI 49601-2158

Lab Work Order # 0111231

Work Site ID:

BOALS WELLS

Matrix: Water

Received: 11/29/2001

Reported: 12/26/2001

Client:

WM_CADILLAC

Number of Samples: 3

Attn: JANICE HEUER
Total: \$314.64

TEST	10091	10115	10125	
UNITS	MUNRO-S1	MUNRO-S2	MUNRO-S3	·
Alkalinity of Water	190	270	372	
mg CaCO3/L				
Ammonia	.05	.09	K 0.1 DL	
mg N/L				
Calcium in Water	65.9	84.5	127	
mg/L	į			
Chloride in Water	3	9	85	
mg/L				
COD	K 5	K 5	14	
mg/L				
Hardness - Calculated	231	294	397	
mg/L	ļ			
Iron in Water	610	580	30	
ug/L				
Magnesium in Water	16.1	20.2	19.4	
mg/L				
Nitrate + Nitrite	K .01	K .01	2.1	
mg N/L				
Potassium in Water	0.7	1.0	2.4	
mg/L				_
Sodium in Water	2.6	5.8	37.0	
mg/L				
Sulfate in Water	30	24	19	
mg/L				
Manganese - Total	73	130	677	
ug/L				

This is an original report:

Marlig

Date:

DEC 2 8 2001

WMD-CADILLAC

Workorder 0111231, Page 1 of 1

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

LABORATORY SERVICE - SECTION

PROCEDURE

NO: SOP 106 Ver. 3 DATE REV.: 05/01

SUBJECT:

Laboratory Result Remark Codes

EFFECTIVE DATE: 1

May 2001

- A value reported is the mean of two or more determinations.
- C value calculated from other independent parameters.
- J estimated value or value not accurate.
- K actual value is known to be less than the value given, i.e., substance, if present, is below Reporting Limit (RL).
- L actual value is known to be greater than the value given.
- T value reported is less than Reporting Limit (RL).
- W value observed is less than lowest value reportable under "T" code.
- DL sample analyzed using a dilution(s).
- DM dilution required due to matrix problems.
- HT recommended laboratory holding time was exceeded before analysis.
- LH QC indicated possible low recovery. Actual level may be higher.
- LL QC indicated possible high recovery. Actual level may be lower.
- MM analytical method or matrix is not within SOP of this laboratory.
- NC no confirmation by a second technique.
- NH non-homogeneous sample made analysis of a representative sample questionable.
- PI possible interference may have affected the accuracy of the laboratory result.
- QC quality control problems exist.
- RB reagent blank. The level of reagent blank contamination is reported in the comment column and may be subtracted from the analyte value by the user.
- ST recommended sample collection/preservation technique not used.
- ACC laboratory accident resulted in no obtainable value.
- FCN free cyanide was not analyzed due to low level of total cyanide.
- INT interference encountered during analysis resulted in no obtainable value.
- IST improper sample collection/preservation. Sample not suitable for analysis.
- NAV requested analysis not available.
- QNS quantity not sufficient to perform requested analysis.
- STR settleable residue was not analyzed due to low suspended solids.

Approved by:

Bob Avery, Laboratory Services Section Chief

Date

DEQ

MICHIGAN DEPT. OF ENVIRONMENTAL QUALITY ENVIRONMENTAL LABORATORY ANALYSIS REQUEST SHEET

LAB ORDER # () - - 0	231 '	HIMLIGIS K.	EQUEST SIL	515 1	MATRIX=	WATER
SUBMITTER DISTRICT DIVISION OR OFFICE		MDEQ PROM MANAGER				THT CODES?
INMIN CAMIL		anice He		330	47000	
LOCATION SAMPLED / SITE ID NO		unice ries	INDEX	7 -TQA	PROJECT PLA	PH
Janice House	Boals Wells	5			•	
COLLECTED BY		PHONE	ext 620.	ADDITIONAL REPOR	čΤ	
Vanice Herder		2317775		TO ATTENTION OF		
OVERFLOW CONTRACT LAB (Rec	uired for ERD)			AT (ADDRESS)	(If different than ab-	ove office)
•						
	FORMATION RE	_	***			
	E BACK OF FORM		OLLECTED			
ONLY SAMPLE ID	ENTIFICATION	DATE	OLLECTED TIME		COMMENTS	
F 10091 Mu	ArD - 51	11/26/01	12:50			
N 10 (MAN)	00-52	r	1:25			
	unro - 53	,,	1:30		*	
	11/10 - 33	<u> </u>	1/- 10		·	
						
6						
			<u> </u>			
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						
9						
10						
ORGANIC		NERAL CHE	MISTRY	<u> </u>	INORGANIO	
VOA VOLATILES (624/8260)	DO Dies		2345678		tal Metals (1 2 3)4	56789
Full List 1 2 3 4 5 6 BTEX/MTBE only 1 2 3 4 5 6		o-Phos 1	2345678		se-Field Filtered 1234 se-Lab Filtered 1234	156789
ON PESTICIDES/PCBS	•	due SS 1	2345678		TY!_L	7
(608/8081/8082)		due TDS 1	2345678	9 10 MICH TE	N METALS 1234	56789
Pesticides & PCBs 1 2 3 4 5 (Pesticides only 1 2 3 4 5 (Tot5 day 1 Carb5 day 1	2345678	_	d, Cr. Cu, Pb, Hr. Se, Ag.	Zn) \$56789
PCBs only 1 2 3 4 5		_	2 3 4 5 6 7 8			56789
Scan 3 (NPDES Only) 1 2 3 4 5		rophyll 1	2345678			56789
BNA BASE NEUTRAL & ACII (625/8270)	DSGA COD	7	2345678		•	56789
BNAs 1 2 3 4 5	6 7 8 9 10 TOC		2345678	9 10 / Ca Mg N	8 K (1 2 3)4	156789
PNAs only 1 2 3 4 5 9 BNs only 1 2 3 4 5 9			2345678	9 10		456789
ACTDs only 1 2 3 4 5		1	2345678	3 9 10 MN pH, C		56789
SPECIAL REQUEST Library Search (Qualitative)	ISGG Pher	nolics 1	2345671		O ₄ , Total Alk (1 2 3) 4	456789 456789
Volatiles 1 2 3 4 5	6 7 8 9 10 GP Phen	nolice pardes) 1	2 3 4 5 6 7 1	3 9 10 Cr ⁴⁶	•	5 6 7 8 9
Other	GB Total		2345678		& Grease 1234	156789
1 2 3 4 5	6 7 8 9 10 Amer	nable CN 1	2345671	3 9 10		
BOTTLE/	LEASED BY / AFFILIATION	, T	perenu	ED RV / AGENTATION		ATE & TIME
-Jo-onistod y LESTS LESTS LESTS	1 . 1	·	/ / /	ED BY / AFFILIATION	10-2"	<u>سر از ادر بره</u>
Chain-o-	white there		W/a	2UP	100	13-30



MICHIGAN DEPT. OF ENVIRONMENTAL QUALITY ENVIRONMENTAL LABORATORY ANALYSIS REQUEST SHEET

SAFETY INFORMATION (MUST BE COMPLETED PRIOR TO SAMPLE SUBMITTAL)

1	Are samples expected to contain cyanide (CN)? If yes, at what level?	YES	MO)
2	Are samples expected to be flamable?	YES	
3 =	Are samples expected to be acidic (pH < 5)? Withfield GA+MA- C2	E	NO
4	Are samples expected to be caustic (pH > 8)?	YES.	MO
5	Are samples expected to be a Biohazard?	YES	AB
6	Are samples expected to be reactive with water or acid?	YES	NO
7	Are samples expected to be radioactive?	YES	AR .
8	Are samples expected to contain dioxin?	YES	40
9	Are samples expected to be explosive?	YES	NØ
10	List additional suspected hazard information.		
		·	····
		•	
		,	
			.
			1



3188 Lafranier Road Traverse City, MI 49686 Phone 231-946-6767 Fax 231-946-8741 www.sosanalytical.com

COMPANY:

BALL ENVIRONMENTAL

SOS PROJECT NO:

012192

C. GROBBEL/BALL ENV

NAME:

BRAD BOALES

PROJECT NO:

1001-21

WSSN:

WELL PERMIT:

TAX ID:

LOCATION:

MUNROE ST

DATE SAMPLED:

SAMPLED BY:

7/17/01

TIME SAMPLED:

SAMPLE MATRIX:

WATER

DATE RECEIVED:

7/17/01

TIME RECEIVED:

8:55 AM

ΜI

COUNTY:

GRAND TRAVERSE

TWP:

WHITEWATER

INORGANICS/WET CHEMISTRY

No	: Analysis	Concentration	LOD	<u>Units</u>	Analyst	<u>Date</u> Completed	Drinking Water Reg Limit(MCL)
SA	MPLE ID: WS-1 (DITCH)						
1	BOD 5-DAY EPA 405.1	**					
1	CHLORIDE EPA 325.2	19,400	500	mg/L (PPM)	SS	7/17/01	
1	CONDUCTIVITY SM2510-B	75,000	100	uS/cm	JK	7/23/01	
1	pH EPA 150.1	3.8	+/- 0.1	s.u.	JК	7/17/01	
SA	MPLE ID: WS-2 (OUTFALL)						
2	BOD 5-DAY EPA 405.1	**			•		
2	CHLORIDE EPA 325.2	15,800	500	mg/L (PPM)	SS	7/17/01	
2	CONDUCTIVITY SM2510-B	69,000	100	uS/cm	JK	7/23/01	
2	pH EPA 150.1	4.1	+/- 0.1	s.u.	JK	7/17/01	

**INVALID - PH TO LOW.

ND = NOT DETECTED
LOD = LIMIT OF DETECTION
SMCL = FEDERAL NON-ENFORCEABLE LIMIT
MCL = MAXIMUM CONTAMINANT LEVEL
s.u. = STANDARD pH UNITS REPORTED AT 25 C
DISS = DISSOLVED

APPROVED BY:

KIRK L CHASE

Page 1 of 1

CHEMIST/VICE PRESIDENT



analytical

CUSTO ? TRANSFER RECORD

Note: This is a four part form, please print using pen, pressing firmly - no dittos. Thank you.

3188 Lafranier ■ Traverse City, Michigan 49686 (231) 946-6767 = FAX (231) 946-8741

									GIIIC	ш. эс	Dinne	gui.com
WSSN/Project No.			Site Addre	SS			_				ompany	
100;-21		Mun	rue St. O	Mrite we	ter						ales	
SAMPLER		TWP	GTO	were G	•		AN	ALYSI	S INF	ORM	ATION TS-27	,
Name of Sampler	Company				1		_					- A 12 - F2
<u> </u>								_			Chla	cide.
C. Grobbel	Ball Brie	ironma	Itel As	soc(s).				i			- nH	11.00
				of Containers	B						_ 1' ' '	
Sample Point (Identification)	Sample Date	Sample Type	Sample Size	Rush Sample							Other A Require	inalysis ed?
WS-1 (ditch)	7/17/01	W		No		X	X	X	X			
WS-1 (ditch)	7/17/01	W		No		X	X	X	Y			
											(
Α,									(\ `\		
								81	10			,
·				Λ	n		V			1	4111	
					04	_	<i>r</i> \) '	 i
							\int	7	y	(rf	W
		·· - · ·					()	U		h \	10	
							<u> </u>		1		<u></u>	
		 .										***
MISC. INFORMATION				·		!						
QUOTE #				MPERATUR	e reci	EIVE	D	·		_7· _	23-	01
INVOICE TO: Ball Enviro	7-			ULTS TO: (In								
I alie Les	Janan, 1	mI E	-mail: be	a @ Gr	rew	ay	111	ed	. -	Planto	ma	l
	idicate above.	HUSH DUE	DATE:		·				_:_	1114	-0	
DELIVERED BY:	·	pero.	· · · · · · · ·									T2
Relinquished by	12/17/01	Time	H	eceived By					Date			Time
	(<u></u>						· 		
·												

Received in Lab

Date /

DEQ

MICHIGAN DEPT. OF ENVIRONMENTAL QUALITY ENVIRONMENTAL LABORATORY

ENTAL QUALITY
ABORATORY
TESHERT

		ANALYSIS	REQUEST SHE	ET	. 🛩	
LAB ORDI	ER# ()]-11-231				MATRIX=W	/ATER
SUBMITTE DIVISION	ER DISTRICT OR OFFICE	MDEQ P MANAG	ROJECT ER & PHONE			HT CODES?
IAAAJU	Cadallar	Janice t	towar	330	47000	
LOCATION	SAMPLED / SITE ID NUMBER		INDEX	- 10 +	PROJECT PLA	PH
-lan	He Jours Boals	wells				
COLLECTI	ED BY	PHONE	ext 620	ADDITIONAL REPO	RT	
Van	ice Heyer	2317	75-3960	TO ATTENTION OF		
OVERFLO	W CONTRACT LAB (Required for ERD)		AT (ADDRESS)	(If different than abov	e office)
	**** SAFETY INFORMAT SEE BACK (-	****			
LAB USE		SAMPI	E COLLECTED			
ONLY	SAMPLE IDENTIFICATION	DATE	TIME	· · · · · · · · · · · · · · · · · · ·	COMMENTS	
ř	1009/ MUNTO -	51 11/261	0) 12: 30			
2	10:15 Munro -	52 r	1:25			
3	10125 Munro -		1:30			
					·	
5.						
6						
7						
8	 					
9					· · · · · · · · · · · · · · · · · · ·	
10						
	ORGANIC	GENERAL C	HEMISTRY		INORGANIC	
VOA Full List	VOLATILES (624/8260) 1 2 3 4 5 6 7 8 9 10	DO Dise Oxygen	12345678		es-Field Filtered 1 2 3 4 5	5 6 7 8 9 10
BTEXMT		GN NO2, e-Phos	12345678	9 10 MID D		5 6 7 8 9 10
ON	PESTICIDES/PCBS	Residue SS Residue TDS	12345678		ion Limit High Lo	ρ₩
Pesticides à	(608/8081/8082) & PCBs	BOD Tot 5 day	12345678	9 10 MICH T	EN METALS 12345	5 6 7 8 9 10
Pesticides (only 1 2 3 4 5 6 7 8 9 10	BOD Carb 5 day	1 2 3 4 5 6 7 8	9 10 🐬 Co 13	Cd, Cr., Cu, Pb, Hg, Se, Ag, Zn 1 2 3 4 5	5 6 7 8 9 10
PCBs only	1 2 3 4 5 6 7 8 9 10 *** NPDES ONLY******		12345678	9 10 Al Be M		5 6 7 8 9 10 5 6 7 8 9 10
	PDES Only) 1 2 3 4 5 6 7 8 9 10	CA Chlorophyll	1 2 3 4 5 6 7 8			5 6 7 8 9 10
BNA	BASE NEUTRAL & ACIDS (625/8270)	GA COD	12345678	Sb - Antir 9 10 T1 - Thall		5 6 7 8 9 10 5 6 7 8 9 10
BNAs	1 2 3 4 5 6 7 8 9 10	TOC	12345678			5 6 7 8 9 10
PNAs only BNs only	-	NO3 + NO2, NH3 KJEL N, Tot P	12345678	0 10	1 2 3 /4 :	5 6 7 8 9 10
ACIDs on			12345678		Conductance 1 2 3 4 5	5 6 7 8 9 10
	SPECIAL REQUESTS			· ·		5 6 7 8 9 10
Volatiles	rch (Qualitative) 1 2 3 4 5 6 7 8 9 10	GG Phenolics GP Phenolics owners	12345678		•• •	5 6 7 8 9 10
Semivolat Other	tiles 1 2 3 4 5 6 7 8 9 10	GB Total CN	12345678	9 10 OG Oil	8 Grance 1 2 2 4 4	5 6 7 8 9 10
	1 2 3 4 5 6 7 8 9 10	Amenable CN	12345678		G. G	, 5 , 6 7 10
	BOTTLE/		1			<u> </u>
-of-	TESTS RELEASED BY / A	AFFILIATION	RECEIVE	ED BY / AFFILIATION	10-24-	E & TIME
Chain-of- Custody	1) Janutte	M	(Ma)	260	10-2	15-30
	2)					



MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY **ENVIRONMENTAL LABORATORY** (517) 335-9800

Williamstr P.O. Box 30270 G. T. Lansing, MI 48909 Co

Report To: Environmental Response Div.

District #6

Lab Work Order # 0102095

Work Site ID: Water WILLIAMSBURG REC.&STORAGE

120 W Chapin Street Cadillac, MI 49601

Matrix:

Received: 2/21/2001

Reported: 3/16/2001

Attn: CHANSY VONGPHASOUK!

Total:

\$348.54

Client: ER_CADILLAC Number of Samples: 2

EST UNITS	OUTFALL 1	SUMP 2	[
Alkalinity of Water	101	86	
mg CaCO3/L		·	; ;
Alkalinity - Bicarbonate	101	86	
mg CaCO3/L	!		ì
Alkalinity - Carbonate	K 5	K 5	
mg CaCO3/L		•	
Ammonia	1.1	1.1	1
mg N/L		; !	
Chloride in Water	166	QNS	**************************************
mg/L	;		1
COD - Titrimetric	1900	2000	the second section of the second section is a second section of the second section sec
mg/L			•
Conductivity of Water	1029	1215	
umho/cm			,
Hex Chromium in Water	INT	INT	i
ug/L			
Nitrate + Nitrite	K 0.1 DL	K 0.1 DL	The second of th
mg N/L	· · · · · · · · · · · · · · · · · · ·		
Nitrite	K.I DL HT		:
mg N/L			:
Nitrogen - Kjeldahl	17	17	:
mg N/L	<u> </u>	:	
Ortho Phosphate	1.3 HT	1.7 HT	
mg P/L	:		
Phosphorus - Total	2.6	2.5	;
mg P/L			
Solids - Suspended	47	40	DECEMEN
mg/L		:	RECEIVED
Solids - Total Dissolved	1400	1900	
mg/L			MAR 2 2 2001
Sulfate in Water	176	QNS	MAN-Z-Z-2001
mg/L			
TOC	710 DL	720 DL	SURFACE WATER QUALITY DI CADILLAC DISTRICT OFF
mg/L			

This is an original report: Lavin C Went Date: 2/28/4

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

PROCEDURE

NO: PD-13/Ver. 2

LABORATORY SERVICES SECTION DATE REV.:12/99

SUBJECT: Laboratory Result Remark Codes

EFFECTIVE DATE: December 1999

- A value reported is the mean of two or more determinations.
- C value calculated from other independent parameters.
- J estimated value or value not accurate.
- K actual value is known to be less than the value given, i.e., substance, if present, is below detection limit.
- L actual value is known to be greater than the value given.
- T value reported is less than criteria of detection.
- W value observed is less than lowest value reportable under "T" code.
- DL sample analyzed using a dilution(s).
- DM dilution required due to matrix problems.
- HT recommended laboratory holding time was exceeded before analysis.
- LH QC indicated possible low recovery. Actual level may be higher.
- LL QC indicated possible high recovery. Actual level may be lower.
- MM analytical method or matrix is not within SOP of this laboratory.
- NC no confirmation by a second technique.
- NH non-homogeneous sample made analysis of a representative sample questionable.
- Pl possible interference may have affected the accuracy of the laboratory result.
- QC quality control problems exist.
- RB reagent blank. The level of reagent blank contamination is reported in the comment column and may be subtracted from the analyte value by the user.
- ST recommended sample collection/preservation technique not used.
- ACC laboratory accident resulted in no obtainable value.
- FCN free cyanide was not analyzed due to low level of total cyanide.
- INT interference encountered during analysis resulted in no obtainable value.
- IST improper sample collection/preservation. Sample not suitable for analysis.
- NAV requested analysis not available.
- QNS quantity not sufficient to perform requested analysis.
- STR settleable residue was not analyzed due to low suspended solids.

Approved by:

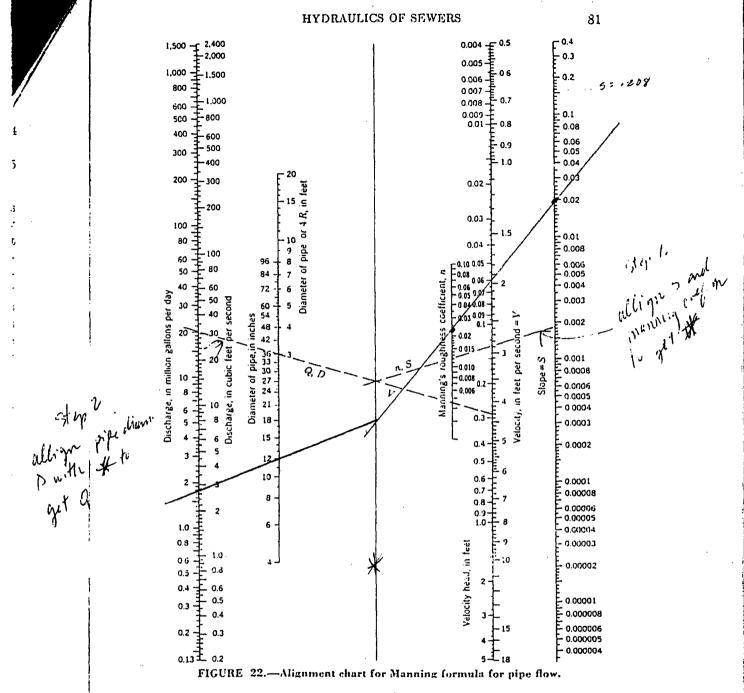
Bob Avery, Laboratory Director

Date

DE

'CHIGAN DEPT. OF ENVIRONMENTAL QUALITY ENVIRONMENTAL LABORATORY ANALYSIS REQUEST SHEET

LABORDE		<u>-0</u>	1-02'	<u>/</u>							MA'	TRIX=\			
SUBMITTEI DIVISION	R	DISTRIC OR OFF			MDEQ PR MANAGE	OJE(R & 1	CT PHONE		. ,				S/NO		-
<	R	0,	dillaci	Nich	id	0	hai	nc	u Van	cunha	rouk	231	15	-3	960 est
LOCATION	SAMPLED	SITE ID	NUMBER	·//	-W-1			DEX	P	CA	PROJEC		PH		- les le
WK.	2 S	0)				3-	141				480	PQ	3	<u> </u>
COLLECTE	ID BY				PHONE			_		AL REPOR	Т				l l
di					(231)7	<u>7ර</u>	390	රට	TO ATTEN	TION OF					_
OVERFLOV	V CONTRAC	CT LAB (R	lequired for ERD)				U.Y.T.	967	AT (ADDR	ESS)	(If different	than abo	ve off	ce)	
	**** SA		INFORMATI EE BACK OF		-	***	*				· 		<u>-</u>		_
LAB USE		-	DENTIFICATION		SAMPLE	CO	LLECTE	D			COMMENT	' 'S	·		_
ONLY				 	DATE	+	TIME								
	Stati	on 1			14/3/	7	1022	<u> </u>							_
2					1-3-0	21									
3						-									_
4															
5															
6															
7				·. ·- · - ···											
						1									
9					-	\dashv				· · · · · · · · · · · · · · · · · · ·					
9						\dashv									-
10					<u> </u>	_			<u> </u>						
1/04	ORGA			GE DO Diss	NERAL CI		AISTR		0.10	MA Tot	INOF	RGANIC 1 2 3 4			10
VOA '	VOLATILES	•	5 6 7 8 9 10		·····						s-Field Filtered				
BTEX/MTI	BE only	1 2 3 4	5 6 7 8 9 10	GN NO ₂	, o-Phos tue SS	$\binom{1}{1}_2^2$	3 4 5			MD Dist	s-Lab Filtered	1234	5 6 7	8 9	10
	PESTICIDE:				iue TDS	1 2	3 4 5	678	9 10	Quantificatio		High			10
Pesticides &	(608/8081/ R PCBs	•	5 6 7 8 9 10	BOD	Tot 5 day	淅	! 3 4 5 ! 3 4 5		1 9 10 1 9 10		N METALS I, Cr, Cu, Pb, H			8 9	10
Pesticides o PCBs only	•		5 6 7 8 9 10 5 6 7 8 9 10	ВОО	carosday ,	2 2 1 2 1 2	2 3 4 5			Fe Co Li i Ai Be Mo		1234			
	** NPDES C				 -	עצ				B Sr		1234	5 6 7	789	10
	•••••	•••••	5 6 7 8 9 10	CA Chlor	rophyll	1 2	2 3 4 5	678	9 10	Ni - Nickel		1 2 3 4			
BNA	BASE NEUT (625/82		CIDS	GA COD		! 2	2 3 4 5	67		Sb - Antimo	-	1234			
BNAs	(5 6 7 8 9 10	TOC		1 2	2 3 4 5	678	3 9 10	Ca Mg Na		1 2 3 4			
PNAs only BNs only	,		5 6 7 8 9 10 5 6 7 8 9 10		+ NO2, NH3 . N, Tot P		2345 2345		8 9 10 8 9 10	Hardness		1234	5 6	789	10
ACIDs onl	ly		5 6 7 8 9 10			\i/2	3 4 5		9 10	MN ALC	onductance	A 234	56	789	10
	SPECL	AL REQUI	STS	•••••	••••••		••••••			, Cr, 20	D ₄ , Total Alk		5 6		
-	rch (Qualitat	•		GG Phe			2 3 4 5			HCO ₃	'co³		5 6		
Volatiles Semivolat	tiles		5 6 7 8 9 10 5 6 7 8 9 10		nolics (NPDES)		2345	07	5 Y IU	Cr+4		Y 2 3 4	5 6 1	, 6 Y	
Other				GB Total	CN		2 3 4 5			OG Oil &	t Grease	1 2 3 4	5 6	7 8 9	10
		1234	5 6 7 8 9 10	Ame	nable CN		2 3 4 5	0 /	9 7 IV	. 					
	BOTTLE / TESTS	R	ELEASED BY / AF	FILIATION		T	RE	CEIV	ED BY / AF	FILIATION		DA	TE &	ПМЕ	
P P P		 	110	C		17	2		0	11-1-		1/9	10		1
Chain-of- Custody	<u></u>	1)	VIT.	<u>د</u>		1	z vy	Orr	100	yju	uson	1		<u> </u>	7
		2)					U			•					



in which the nomenclature is basically the same as that used in Equation

13 and C is a coefficient related to roughness.

The formula is used widely for pressure-conduit or pipe flow, although it is equally applicable to open-channel conditions. Published values for C have come largely from pipe-flow experiments, while many of the reported n values are from open-channel flow tests. The Hazen-Williams

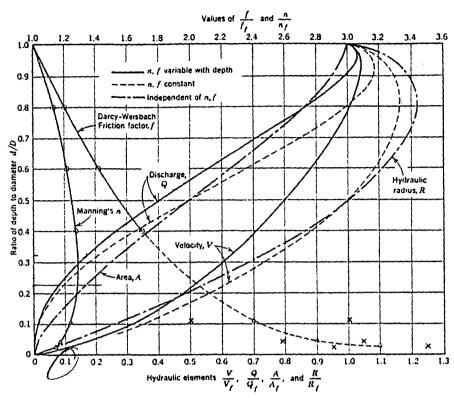


FIGURE 24 .- Hydraulic-elements graph for circular sewers.

et al. (22). Graphs for sewers of other than circular cross section may be developed by the same general method.

Most of the hydraulic-elements graphs in common use have been prepared on the assumption that the Manning n does not change with the depth of flow for the particular conduit shape. Nonetheless, many experimenters have observed a variation of n with depth of flow. The experiments of Wilcox (23) and of Yarnell and Woodward (24) show that the value of n for a pipe flowing partly full is greater than for the full pipe; and the average n values for 824 experiments are as indicated by the curve through the points marked by circles in Figure 24. A similar curve for the Darcy-Weisbach fraction factor f also is shown in the same figure.

The relation between the two friction coefficients is

which is similar to Equation 19.

on is

D/k

)-in.

z be

ject

thly

pipe

on-

dts

นธ าก

The points in Figure 24 marked by triangles and x's were estimated from the measurements made by Johnson (25) in large Louisville, Ky., sewers flowing partly full. Since individual values of f/f_f in the experiments of Wilcox and of Yarnell and Woodward varied widely from the average for a particular value of d/D, the reliability of the averages used in Figure 24 may be questioned. Tests by Schmidt (26) on a large

Pages 99-101 Exemption 6

ATTACHMENT 1

February 15, 2000

Ms. Diane Lundin Environmental Solutions, Inc. P.O. Box 2127 Traverse City, MI 49685-2127

RE: Trace ID Y858

Dear Mr. Lundin:

Enclosed are the analytical results associated with your Project #1021.

This information was examined through Trace's validation process to ensure that all requirements for quality and completeness were satisfied. All reported analytical results were obtained in accordance with the methods referenced on the reports. Every practical effort was made to meet the reporting limit specifications for this work. However, if there are exceptions, they will be noted at the bottom of the appropriate report page.

Thank you for working with Trace. If you have questions regarding this data, please contact Ann Preston, our client services manager, at (231) 773-5998, ext. 224.

Sincerely,

Ray V. Buhl

Laboratory Manager

RVB/bmc Enclosures 2241 Black Creek Road • Muskegon, MI 49444-2673 • Phone 231-773-5998 • Fax 231-773-6537 • E-Mail: TraceAnalytical@mad.scientist.com

Ms. Diane Lundin

Environmental Solutions, Inc.

P.O. Box 2127

Traverse City, MI 49685-2127

TRACE ID: Y858

REPORT DATE: 02/15/00

ANALYSIS DATE: 02/15/00

ANALYST: cy

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00

SAMPLE RECEIVED: 02/03/00

SAMPLE TYPE: Water

TRACE SAMPLE NO.	SAMPLE ID	TOTAL PHOSPHORUS mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	2.6	* 0.50	EPA 365,2
02	Pitting Sample 2	3.2	* 0.50	EPA 365.2
03	Pitting Sample 3	2.2	* 0.50	EPA 365.2
04	Pitting Sample 4	3.1	* 0.50	EPA 365.2

^{*} Reporting limit was raised due to dilution.

2241 Black Creek Road • Muskegon, MI 49444-2673 • Phone 231-773-5998 • Fax 231-773-6537 • E-Mail: TraceAnalytical@mad.scientist.com

Ms. Diane Lundin

Environmental Solutions, Inc.

P.O. Box 2127

Traverse City, MI 49685-2127

TRACE ID: Y858

REPORT DATE: 02/15/00

ANALYSIS DATE: 02/03/00

ANALYST: uh/dj

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00

SAMPLE RECEIVED: 02/03/00

SAMPLE TYPE: Water

TRACE SAMPLE NO.	SAMPLE ID	NITRATE NITROGEN mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	1.9	0.015	EPA 300.0
02	Pitting Sample 2	1.8	0.015	EPA 300.0
03	Pitting Sample 3	1.8	0.015	EPA 300.0
04	Pitting Sample 4	1.8	0.015	EPA 300.0

2241 Black Creek Road • Muskegon, MI 49444-2673 • Phone 231-773-5998 • Fax 231-773-6537 • E-Mail: TraceAnalytical@mad.scientist.com

Ms. Diane Lundin

Environmental Solutions, Inc.

P.O. Box 2127

Traverse City, MI 49685-2127

TRACE ID: Y858

REPORT DATE: 02/15/00

ANALYSIS DATE: 02/03/00

ANALYST: uh/dj

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00

SAMPLE RECEIVED: 02/03/00

SAMPLE TYPE: Water

TRACE SAMPLE NO.	SAMPLE ID	NITRITE NITROGEN mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	0.027	0.015	EPA 300.0
02	Pitting Sample 2	0.025	0.015	EPA 300.0
03	Pitting Sample 3	0.023	0.015	EPA 300.0
04	Pitting Sample 4	0.025	0.015	EPA 300.0

Analytical Laboratories, Inc.

2241 Black Creek Road • Muskegon, MI 49444-2673 • Phone 231-773-5998 • Fax 231-773-6537 • E-Mail: TraceAnalytical@mad.scientist.com

Ms. Diane Lundin

Environmental Solutions, Inc.

P.O. Box 2127

Traverse City, MI 49685-2127

TRACE ID: Y858

REPORT DATE: 02/15/00 ANALYSIS DATE: 02/04/00

ANALYST: uh/di

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00

SAMPLE RECEIVED: 02/03/00

SAMPLE TYPE: Water

TRACE SAMPLE NO.	SAMPLE ID	FLUORIDE mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	0.30	0.10	EPA 300.0
02	Pitting Sample 2	0.36	0.10	EPA 300.0
03	Pitting Sample 3	0.28	0.10	EPA 300.0
04	Pitting Sample 4	0.39	0.10	EPA 300.0

Analytical Laboratories, Inc.

2241 Black Creek Road . Muskegon, MI 49444-2673 . Phone 231-773-5998 . Fax 231-773-6537 . E-Mail: TraceAnalytical@mad.scientist.com

Ms. Diane Lundin

Environmental Solutions, Inc.

P.O. Box 2127

Traverse City, MI 49685-2127

TRACE ID: Y858

REPORT DATE: 02/15/00

ANALYSIS DATE: 02/04/00

ANALYST: uh/dj

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00

SAMPLE RECEIVED: 02/03/00

SAMPLE TYPE: Water

TRACE SAMPLE NO.	SAMPLE ID	CHLORIDE mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	260 ^	* 2.0	EPA 300.0
02	Pitting Sample 2	340 ·	* 2.0	EPA 300.0
03	Pitting Sample 3	190 ়	* 2.0	EPA 300.0
04	Pitting Sample 4	350	* 2.0	EPA 300.0

^{*} Reporting limit was raised due to dilution.

2241 Black Creek Road . Muskegon, MI 49444-2673 . Phone 231-773-5998 . Fax 231-773-6537 . E-Mail: TraceAnalytical@mad.scientist.com

Ms. Diane Lundin

Environmental Solutions, Inc.

P.O. Box 2127

Traverse City, MI 49685-2127

TRACE ID: Y858

REPORT DATE: 02/15/00

ANALYSIS DATE: 02/04/00

ANALYST: uh/dj

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00

SAMPLE RECEIVED: 02/03/00

SAMPLE TYPE: Water

TRACE			REPORTING	
SAMPLE	0.44451.5.15	SULFATE	LIMIT	METHOD
NO.	SAMPLE ID	mg/L	mg/L	NUMBER
01	Pitting Sample 1	49	* 10	EPA 300.0
02	Pitting Sample 2	44	* 10	EPA 300.0
03	Pitting Sample 3	49	* 10	EPA 300.0
04	Pitting Sample 4	51	* 10	EPA 300.0

^{*} Reporting limit was raised due to dilution.

2241 Black Creek Road • Muskegon. MI 49444-2673 • Phone 231-773-5998 • Fax 231-773-6537 • E-Mail: TraceAnalytical@mad.scientist.com

Ms. Diane Lundin

Environmental Solutions, Inc.

P.O. Box 2127

Traverse City, MI 49685-2127

TRACE ID: Y858

REPORT DATE: 02/15/00

ANALYSIS DATE: 02/03/00

ANALYST: js

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00

SAMPLE RECEIVED: 02/03/00

SAMPLE TYPE: Water

TRACE SAMPLE NO.	SAMPLE ID	pН	REPORTING LIMIT	METHOD NUMBER
01	Pitting Sample 1	6.73	NA	EPA 150.1
02	Pitting Sample 2	6.12	NA	EPA 150.1
03	Pitting Sample 3	6.98	NA	EPA 150.1
04	Pitting Sample 4	6.23	NA	EPA 150.1

2241 Black Creek Road . Muskegon, MI 49444-2673 . Phone 231-773-5998 . Fax 231-773-6537 . E-Mail: TraceAnalytical@mad.scientist.com

Ms. Diane Lundin

Environmental Solutions, Inc.

P.O. Box 2127

Traverse City, MI 49685-2127

TRACE ID: Y858

REPORT DATE: 02/15/00

ANALYSIS DATE: 02/04/00

ANALYST: cy

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00

SAMPLE RECEIVED: 02/03/00

SAMPLE TYPE: Water

TRACE SAMPLE NO.	SAMPLE ID	SPECIFIC CONDUCTANCE µmhos/cm	REPORTING LIMIT μmhos/cm	METHOD NUMBER
01	Pitting Sample 1	1400	200	EPA 120.1
02	Pitting Sample 2	1700	200	EPA 120.1
03	Pitting Sample 3	1200	200	EPA 120.1
04	Pitting Sample 4	1800	200	EPA 120.1

2241 Black Creek Road · Muskegon, MI 49444-2673 · Phone 231-773-5998 · Fax 231-773-6537 · E-Mail: TraceAnalytical@mad.scientist.com

Ms. Diane Lundin

Environmental Solutions, Inc.

P.O. Box 2127

Traverse City, MI 49685-2127

TRACE ID: Y858

REPORT DATE: 02/15/00

ANALYSIS DATE: 02/07/00

ANALYST: uh

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00

SAMPLE RECEIVED: 02/03/00

SAMPLE TYPE: Water

TRACE SAMPLE NO.	SAMPLE ID	AMMONIA NITROGEN mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	1.2	* 0.050	EPA 350.1
02	Pitting Sample 2	1.4	* 0.050	EPA 350.1
03	Pitting Sample 3	0.91	* 0.050	EPA 350.1
04	Pitting Sample 4	1.5	* 0.050	EPA 350.1

^{*} Reporting limit was raised due to dilution.

2241 Black Creek Road • Muskegon, MI 49444-2673 • Phone 231-773-5998 • Fax 231-773-6537 • E-Mail: TraceAnalytical@mad.scientist.com

Ms. Diane Lundin

Environmental Solutions, Inc.

P.O. Box 2127

Traverse City, MI 49685-2127

TRACE ID: Y858

REPORT DATE: 02/15/00

ANALYSIS DATE: 02/09/00

ANALYST: uh

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00

SAMPLE RECEIVED: 02/03/00

SAMPLE TYPE: Water

TRACE			REPORTING	
SAMPLE		BOD	LIMIT	METHOD
NO.	SAMPLE ID	mg/L	mg/L	NUMBER
01	Pitting Sample 1	** 900	* 400	EPA 405.1
02	Pitting Sample 2	** 1200	* 400	EPA 405.1
03	Pitting Sample 3	** 700	* 400	EPA 405.1
04	Pitting Sample 4	** 1300	* 400	EPA 405.1

^{*} Reporting limit was raised due to dilution.

^{**} The sample result and reporting limit must be considered estimated. The analysis was performed beyond the EPA established 24 hour hold time.

2241 Black Creek Road • Muskegon, MI 49444-2673 • Phone 231-773-5998 • Fax 231-773-6537 • E-Mail: TraceAnalytical@mad.scientist.com

Ms. Diane Lundin Environmental Solutions, Inc.

P.O. Box 2127

Traverse City, MI 49685-2127

TRACE ID: Y858

REPORT DATE: 02/15/00

ANALYSIS DATE: 02/08/00

ANALYST: cy

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00

SAMPLE RECEIVED: 02/03/00

SAMPLE TYPE: Water

TRACE SAMPLE NO.	SAMPLE ID	BICARBONATE ALKALINITY as CaCO₃ mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	97	10	EPA 310.1
02	Pitting Sample 2	92	10	EPA 310.1
03	Pitting Sample 3	88	10	EPA 310.1
04	Pitting Sample 4	92	10	EPA 310.1

2241 Black Creek Road . Muskegon, MI 49444-2673 . Phone 231-773-5998 . Fax 231-773-6537 . E-Mail: TraceAnalytical@mad.scientist.com

Ms. Diane Lundin

Environmental Solutions, Inc.

P.O. Box 2127

Traverse City, MI 49685-2127

TRACE ID: Y858

REPORT DATE: 02/15/00

ANALYSIS DATE: 02/08/00

ANALYST: cy

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00

SAMPLE RECEIVED: 02/03/00

SAMPLE TYPE: Water

TRACE SAMPLE NO.	SAMPLE ID	CARBONATE ALKALINITY as CaCO ₃ mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	U	10	EPA 310.1
02	Pitting Sample 2	U	10	EPA 310.1
03	Pitting Sample 3	U	10	EPA 310.1
04	Pitting Sample 4	U	10	EPA 310.1

2241 Black Creek Road • Muskegon, MI 49444-2673 • Phone 231-773-5998 • Fax 231-773-6537 • E-Mail: TraceAnalytical@mad.scientist.com

Ms. Diane Lundin

Environmental Solutions, Inc.

P.O. Box 2127

Traverse City, MI 49685-2127

TRACE ID: Y858

REPORT DATE: 02/15/00

ANALYSIS DATE: 02/07/00

ANALYST: uh/dj

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00

SAMPLE RECEIVED: 02/03/00

SAMPLE TYPE: Water

TRACE SAMPLE NO.	SAMPLE ID	TOTAL INORGANIC NITROGEN mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	3.1	0.040	EPA 300.0/350.1
02	Pitting Sample 2	3.2	0.040	EPA 300.0/350,1
03	Pitting Sample 3	2.8	0.040	EPA 300.0/350.1
04	Pitting Sample 4	3.4	0.040	EPA 300.0/350.1

2241 Black Creek Road • Muskegon. MI 49444-2673 • Phone 231-773-5998 • Fax 231-773-6537 • E-Mail: TraceAnalytical@mad.scientist.com

Ms. Diane Lundin

Environmental Solutions, Inc.

P.O. Box 2127

Traverse City, MI 49685-2127

TRACE ID: Y858

REPORT DATE: 02/15/00

ANALYSIS DATE: 02/09/00

ANALYST: sd

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00

SAMPLE RECEIVED: 02/03/00

SAMPLE TYPE: Water

TRACE SAMPLE NO.	SAMPLE ID	HARDNESS mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	580	2.0	SM 2340B
02	Pitting Sample 2	670	2.0	SM 2340B
03	Pitting Sample 3	510	2.0	SM 2340B
04	Pitting Sample 4	710	2.0	SM 2340B

2241 Black Creek Road • Muskegon, MI 49444-2673 • Phone 231-773-5998 • Fax 231-773-6537 • E-Mail: TraceAnalytical@mad.scientist.com

Ms. Diane Lundin

Environmental Solutions, Inc.

P.O. Box 2127

Traverse City, MI 49685-2127

TRACE ID: Y858-01

REPORT DATE: 02/15/00

DIGESTION DATE: 02/04/00

ANALYST: sd

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00

SAMPLE RECEIVED: 02/03/00

SAMPLE TYPE: Water

SAMPLE ID: Pitting Sample 1

TOTAL METALS	RESULT mg/L	REPORTING LIMIT mg/L	ANALYZED	METHOD NUMBER
Calcium	200	1.0	02/09/00	EPA 6010
Iron	0.17	0.020	02/09/00	EPA 6010
Magnesium	22	1.0	02/09/00	EPA 6010
Potassium	32	0.10	02/09/00	EPA 6010
Sodium	88	1.0	02/09/00	EPA 6010

2241 Black Creek Road • Muskegon, MI 49444-2673 • Phone 231-773-5998 • Fax 231-773-6537 • E-Mail: TraceAnalytical@mad.scientist.com

Ms. Diane Lundin

Environmental Solutions, Inc.

P.O. Box 2127

Traverse City, MI 49685-2127

TRACE ID: Y858-02

REPORT DATE: 02/15/00

DIGESTION DATE: 02/04/00

ANALYST: sd

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00

SAMPLE RECEIVED: 02/03/00

SAMPLE TYPE: Water

SAMPLE ID: Pitting Sample 2

TOTAL METALS	RESULT mg/L	REPORTING LIMIT mg/L	ANALYZED	METHOD NUMBER
Calcium	230	1.0	02/09/00	EPA 6010
iron	0.17	0.020	02/09/00	EPA 6010
Magnesium	22	1.0	02/09/00	EPA 6010
Potassium	46	0.10	02/09/00	EPA 6010
Sodium	120	1.0	02/09/00	EPA 6010

2241 Black Creek Road • Muskegon, MI 49444-2673 • Phone 231-773-5998 • Fax 231-773-6537 • E-Mail: TraceAnalysical@mad.sciensiss.com

Ms. Diane Lundin

Environmental Solutions, Inc.

P.O. Box 2127

Traverse City, MI 49685-2127

TRACE ID: Y858-03

REPORT DATE: 02/15/00

DIGESTION DATE: 02/04/00

ANALYST: sd

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00

SAMPLE RECEIVED: 02/03/00

SAMPLE TYPE: Water

SAMPLE ID: Pitting Sample 3

TOTAL METALS	RESULT mg/L	REPORTING LIMIT mg/L	ANALYZED	METHOD NUMBER
Calcium	170	1.0	02/09/00	EPA 6010
Iron	0.18	0.020	02/09/00	EPA 6010
Magnesium	22	1.0	02/09/00	EPA 6010
Potassium	24	0.10	02/09/00	EPA 6010
Sodium	70	1.0	02/09/00	EPA 6010

2241 Black Creek Road . Muskegon, MI 49444-2673 . Phone 231-773-5998 . Fax 231-773-6537 . E-Mail: TraceAnalytical@mad.scientiss.com

Ms. Diane Lundin

Environmental Solutions, Inc.

P.O. Box 2127

Traverse City, MI 49685-2127

TRACE ID: Y858-04

REPORT DATE: 02/15/00

DIGESTION DATE: 02/04/00

ANALYST: sd

CLIENT ID: Proj. #1021

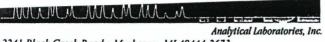
SAMPLE DATE: 02/03/00

SAMPLE RECEIVED: 02/03/00

SAMPLE TYPE: Water

SAMPLE ID: Pitting Sample 4

TOTAL METALS	RESULT mg/L	REPORTING LIMIT mg/L	ANALYZED	METHOD NUMBER
Calcium	250	1.0	02/09/00	EPA 6010
Iron	0.16	0.020	02/09/00	EPA 6010
Magnesium	22	1.0	02/09/00	EPA 6010
Potassium	40	0.10	02/09/00	EPA 6010
Sodium	120	1.0	02/09/00	EPA 6010



ANALYTICAL SERVICES AUTHORIZATION CHAIN-OF-CUSTODY RECORD

2/17 THACE ID NO.

2241 Black Creek Road . Muskegon, MI 49444-2673 Phone 231-773-5998 • Fax 231-773-6537 PLEASE COMPLETE STEPS 1 THRU 3. TRACE PERSONNEL WILL COMPLETE SECTIONS SHADED BLUE WILLIAMS ENVIRONMENTAL SOLUTIONS Client Name Checked By: Logged By: ACE 0 TRAC Contact Person: DIANE LUNGIN Received on ice: Yes 1111 BUSINUSS Mailing Address: PANK DRIVE 1023 S City, State, Zip Code: City, MicHIGAN 0 For Use O ш C Phone: 231 Cooler Temp (°C): ph Checked: Yes No Email Address: Resi-tc. com 0 Volatiles Preserved: HCI MeOH En Core No Metals Pres: Q Yes Trace Client Job #: 102 | P.O. #: Quote #: HUBBOLL WILLIAMSBURG RECEIVING Sampled By: **ANALYSIS REQUESTED Turnaround Requirements** Regulatory Requirements Matrix Key Standard MERA TMDL's DW = Drinking Water Services * 5 Day (RUSH) RCRA S = Soil SL = Sludge * 2-4 Day (RUSH) **NPDES** W = Water A = AirUSACE * 24 Hour (RUSH) Wisconsin * Requires prior approval O = OilX = Other Analytical MATRIX CLIENT SAMPLE ID REMARKS SEE ATTACHED PITTING SAMPLE! for LIST FOR S DETECTION LIMITS AND METITORS Sample Identifical 3 tody Item Item DATE DATE TIME RELEASED BY ECEIVED BY TIME **RELEASED BY** RECEIVED BY Cus ш 2)

12/13/05



4125 Cedar Run Road, Suite B Traverse City, MI 49684

voice: (231) 946-6767 fax: (231) 946-8741

SOSanalytical.com

COMPANY:

CHERRY BLOSSOM, L.L.C.

SOS PROJECT NO:

055691

NAME:

PROJECT NO:

SAMPLED BY:

TIM GATES/ISE

DATE SAMPLED:

12/9/05

WSSN:

WELL PERMIT:

TIME SAMPLED:

TAX ID:

SAMPLE MATRIX:

SOIL

LOCATION:

CHERRY BLOSSOM LLC

DATE RECEIVED:

12/9/05

WILLIAMSBURG

02061

TIME RECEIVED:

4:55 PM

MI

*CHLORIDE RESULTS REPORTED ON A DRY WEIGHT

BASIS

COUNTY: TWP:

INORGANICS

	an Amelianti	0		1114	Amaland	Date	Drinking Water
Ň		<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Completed</u>	Reg Limit(MCL)
S	AMPLE ID: SB-131 @ 1'						
1	CHLORIDE EPA 9251	127	20	mg/Kg (PPM)	KMC	12/13/05	
1	SOLID, PERCENT	92.05		Percent (%)	CG	12/12/05	
S	AMPLE ID: SB-132 @ 1'						
2		3,230	50	mg/Kg (PPM)	KMC	12/13/05	
2	SOLID, PERCENT	49.64		Percent (%)	CG	12/12/05	
S	AMPLE ID: SB-133 @ 1'				•		
3	CHLORIDE EPA 9251	255	20	mg/Kg (PPM)	KMC	12/13/05	
3	SOLID, PERCENT	89.97		Percent (%)	CG	12/12/05	
S	AMPLE ID: SB-134 @ 1'						
4		1,950	20	mg/Kg (PPM)	KMC	12/13/05	
4	SOLID, PERCENT	88.80		Percent (%)	CG	12/12/05	

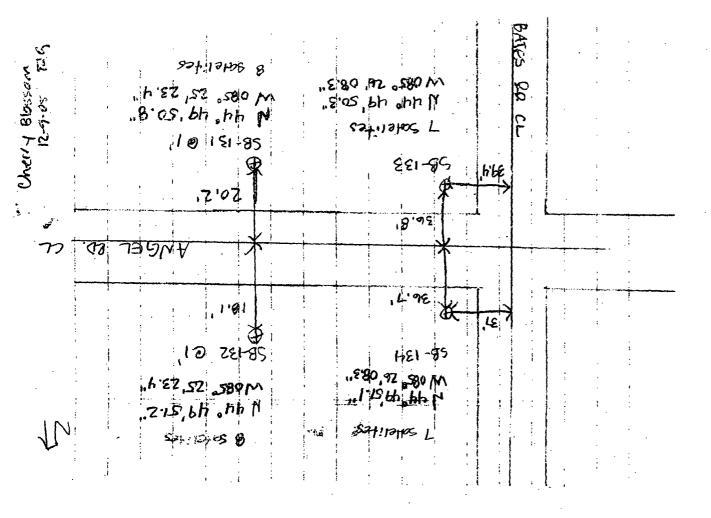
ND = NOT DETECTED LOD = LIMIT OF DETECTION SMCL = FEDERAL NON-ENFORCEABLE LIMIT MCL = MAXIMUM CONTAMINANT LEVEL s.u. = STANDARD pH UNITS REPORTED AT 25 C DISS = DISSOLVED

APPROVED BY:

SHANNA SHEA

Page 1 of 1

LAB MANAGER



	5B-13 (v. lagra 0)
<i>:</i> .	5B-131 Unerry Blossom 12-9-or 0"-6" Field GLASS/TOSSOIL
·	6"-12" Sand, Fine, trace clay, soft, brown, Mois
٠.	58-137
	Same as \$8-131
	0"-6" Field Gross/ Taxoil
	6"- 12" Sand Fine, trace silt, Soft, brown in
	Same as 58-133

· · · · · · · · ·

the state of the s

Prepared by Public Sector Consultants, Inc. For Michigan Department of Transportation

THE USE OF SELECTED DEICING MATERIALS ON MICHIGAN ROADS: Environmental and Economic Impacts

December 1993

Exhibit 2.1: Tops of Road Salt Used per Winter on County and Municipal Roads under the Jurisdiction of the MDOT (in thousands) 1983-84 1984-85 1985-86 1986-87 1987-88 1990-91 District 1988-89 1989-90 1991-92 1 25.2 24.7 27.4 20.4 27.7 32.6 30.6 31.1 31.0 15.9 19.0 18.8 15.1 20.2 20.1 19.2 18.0 2 23.7 27.0 29.1 32.9 3 22.3 24.7 17.3 25,6 38.8 41.6 4 26.2 31.0 21.5 34.0 39.3 46.2 33.0 26.7 41.4 5 70.7 52.2 42.5 49.3 30.1 50.8 65.7 53.6 63.8 58.4 37.4 51.9 46.1 46.0 61.1 6 39.4 48.7 51.9 7 43.9 44.7 44.5 51.8 23.8 42.6 40.1 61.3 50.5 8 43.1 53.4 27.9 40.0 36.4 55.3 42.9 45.2 46.0 Metro Detroit 143.4 143.9 139.0 79.4 112.1 104.1 157.1 132.6 130.7 TOTAL 417.2 421.6 477.4 272.9 401.7 399.9 535.3 429.0 480.0 SOURCE: Michigan Department of Transportation.

recommendations and the use of controlling devices, there has been no overall reduction in road salt use.1

Road salt costs \$20-40 per ton.

Road Salt Storage

Deicing chemicals can contaminate soil, surface water, and groundwater. Road salt was at one time stored uncontained and without protection from precipitation; road salt contamination has been identified at at least 62 salt storage facilities operated by the MDOT, municipalities, or county authorities.² Most MDOT road salt now is stored in sheds constructed for that specific purpose. Additionally, efforts are made to ensure that trucks are loaded in a contained area, which reduces the amount of road salt released to areas adjacent to storage facilities. The MDNR Waste Management Division recently surveyed 122 agencies that store or use salt or brine for road deicing. Of the 14 MDOT facilities surveyed, some were not in compliance with one or more storage requirements; that is, they had failed to develop a pollution incident prevention plan, had not obtained a permit for surface water or groundwater discharge, did not properly contain floor drain/truck wash water, and/ or they store salt/sand on impervious pads. However, it is the MDOT's goal to achieve compliance with all MDNR salt storage requirements.³

The MDOT provides to contracting counties and local governments funds to construct containers for road salt; the amount of funding depends on the five-year average percentage of stored road salt used by the localities on state roads. For example, if, over five years, 50 percent of the road salt stored in a locality's facility is used on state trunk lines, the department provides 50 percent of the cost of constructing containment facilities. (At facilities not under the jurisdiction of the MDOT, containment varies widely.)

Highway Deicing

Comparing
Salt
and
Calcium
Magnesium
Acetate

Committee on the Comparative Costs of Rock Salt and Calcium Magnesium Acetate (CMA) for Highway Deicing

Transportation Research Board National Research Council Washington, D.C. 1991 and highways, such as multilane freeways, are typically treated most intensely, through higher application rates and more frequent treatment. Lower-priority streets and secondary roads are often left untreated for longer periods, or not treated at all (see Figure 2-2).

Official salt application rates for several states are listed in Table 2-1. Rates vary from state to state, although most are between 200 and 400 lb/lane-mi on high-priority highways. On medium-priority roads, coverage tends to be reduced or eliminated at night, and salt is mixed with abrasives to reduce salt use by at least 25 percent. These policies generally do not limit the frequency of application. As might be expected, northern states tend to have the highest annual loadings of salt because of their higher application frequencies. New York, Massachusetts, Michigan, New Hampshire, and Vermont report the highest annual salt loadings. Each averages more than 10 tons/lane-mi on state-maintained highways (Table 2-2).

Municipal highway agencies were not surveyed in this study. They are among the most generous users of road salt because of the emphasis placed on clearing bus lanes and commuter routes (TRB 1974). Toll authorities are also heavy salt users, because they are selling a service and do not wish to lose customers by allowing hazardous driving conditions or delays.

Storage

Salt storage facilities are usually located at highway maintenance yards as well as at other intermediate points along highways (see Figure 2-3). The location, size, and number of storage facilities often depend on the priority of the roads being treated and the incidence of special features, such as bridges and intersections that require more frequent salting.

When stored outside and exposed to precipitation, salt solution may run off and leach into surrounding soils and groundwater unless properly covered and drained. Accordingly, highway agencies increasingly store salt on impervious pads and in leakproof shelters, such as sheds, barns, or "beehive" domes that correspond to the salt pile's angle of repose. These buildings, which often cost upwards of \$100,000 to build, can provide storage for more than 1,000 tons of salt. In recent years, some highway agencies have introduced high-capacity silos for gravity loading. Silos reduce the potential for spillage during handling while protecting the salt from exposure to moisture and humidity.

TABLE 2-1 OFFICIAL SALT USE POLICIES IN VARIOUS STATES

Region and State	Summary of General Policy
New England	
Connecticut	Salt applied at 215 lb/lane-mi on multilane roads; no more than 150 lb/lane-mi on two-lane state highways
Massachusetts	Salt applied at less than 300 lb/lane-mi on state highways
New Hampshire	Salt application guideline of 250 to 300 lb/lane-mi on state highways
Middle Atlantic	
Maryland	Salt application guideline of 300 to 500 lb/lane-mi on state highways
West Virginia	Salt application guideline of 100 to 250 lb/lane-mi, usually mixed with abrasives, except in cities
Great Lakes	
Michigan	Salt applied at 225 lb/lane-mi on primary highways. Salt and sand mixtures used on lower-priority roads, depending on storm temperature and severity
Ohio	Salt applied at 200 to 300 lb/lane-mi on Interstate and primary highways; 100 to 200 lb/lane-mi, with abrasives on secondary roads; no more than 100 to 200 lb/lane-mi on low-priority roads
Wisconsin	Salt application rates of 100 to 300 lb/lane-mi recommended; additional salt use restrictions related to pavement temperature in place
Plains	
Iowa	Salt applied at 150 lb/lane-mi (mixed with sand) on Interstates and other arterials; 100 lb/lane-mi on collectors; no salt used on local roads
Kansas	Salt applied at 100 to 250 lb/lane-mi (mixed with sand) on Interstates, freeways, and other roads with 2,500 + ADT; less on roads with 750 to 2,500 ADT; no salt used on roads with < 750 ADT
West	
Colorado	Salt only with abrasives; rates not defined
- California	Salt applied at 500 lb/lane-mi on some mountain highways

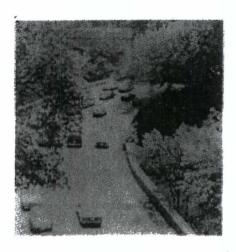
Note: Although policies often identify an ideal salt application rate for equipment calibration, they seldom regulate the timing and frequency of applications. Application timing and frequency are typically determined by the maintenance engineer in charge during the storm. Data in the table are from states that responded to relevant questions in survey. ADT = average daily traffic.

Source: TRB survey of state highway agencies.

SALT USE BY JURISDICTION AND REGION

Nationwide, there are more than 3.8 million mi of public highway and streets. Except for minor amounts of mileage on federal lands, practically all of these roads are maintained by state and local high-

4 Road Salt Impacts on the Environment



Hundreds of reports have been written during the past three decades documenting the impact of road salt on the environment. The literature clearly indicates that the impacts can be significant but depend on a wide range of factors unique to each site.

The emphasis of this chapter

is on summarizing what is known about road salt's environmental effects on the basis of these reports. The effects discussed are those most frequently cited in the literature—damage to roadside vegetation, water, and soil. Because the significance of each effect varies by location, in the absence of detailed information it is not possible to quantify costs on a national basis. Instead, to help illustrate the discussion and provide some perspective on cost, the chapter concludes with several hypothetical cases.

VEGETATION

The adverse effects of sait on roadside vegetation have been known for some time. Incidents of vegetation injury were first reported in Minnesota during the 1950s, when trees along city boulevards started to show signs of salt-related decline (French 1959). At about this time the New Hampshire Highway Department reported the death and removal of nearly 14,000 trees along 3,700 mi of salt-treated highways (Sucoff 1975).

For many situations, however, redesign of roadsides is not practical. As a result, most highway agencies are faced with three options: acceptance of some salt-related damage to roadside vegetation, discontinuance or restriction of salt treatments in especially sensitive areas, or use of a deicing substitute with fewer side effects than salt (Hanes et al. 1970).

SURFACE WATER

In most parts of the country, fresh water contains low salt concentrations. Average chloride concentrations in freshwater lakes and rivers are 0 to 100 mg/L, and most concentrations are lower than 20 mg/L (Goldman and Horne 1983). However, salt and its components, sodium and chloride, can access fresh water through numerous sources. Seawater, which contains chloride concentrations of about 20 000 mg/L (Table 4-2), is a potential source of salt in fresh

TABLE 4-2 TYPICAL CHLORIDE CONCENTRATIONS IN SOURCES OF WATER (Hanes et al. 1970)

Type of Water	Chloride Concentration (mg/L)				
Rainwater	0–2				
Upland surface water	0-12				
Unpolluted river water	0-15				
Springwater	0-25				
Deep well water	0-50				
Sewage water	70-500				
Seawater	20 000				

waters in coastal areas. Other sources are natural salt deposits, brines from oil and gas fields, household sewage, agricultural chemicals, and industrial waste (Hanes et al. 1970). During the past 30 years, salt runoff from highways, especially from salt storage facilities, has been identified as a source of salt in surface water. In recent years greater attention to salt storage practices has reduced the incidence of storage-related contamination; hence, this section focuses on highway surface runoff as a source of surface water contamination.

During and after storms and during spring melts, highway runoff may contain high concentrations of sodium and chloride. For instance, chloride concentrations higher than 10 000 mg/L have been reported in Ontario and Wisconsin during early spring thaws near large road-side snowbanks (Kronis 1978; Schraufnagel 1965). Ordinarily, however, even high concentrations of salt are quickly diluted when they

enter larger water systems. For example, Schraufnagel found chloride concentrations higher than 10 000 mg/L in spring runoff in Wisconsin, yet the maximum concentration in adjacent surface waters was only 45 mg/L (Schraufnagel 1965). As discussed in the following sections, this dilution effect varies by size and type of surface water.

Rivers and Streams

Correlations have been established linking road salt to elevated chloride concentrations in surface waters. The correlation is weakest for large rivers because of the large dilution factor associated with river volume (Scott 1976; Hawkins 1971; Walker and Wood 1973; Van de Voorde et al. 1973; Ralston and Hamilton 1978). Generally, smaller roadside streams and creeks are more likely to be affected. The magnitude of the impact depends on factors such as water flow, salting intensity, precipitation, type of highway drainage system, topography, and natural drainage patterns (Scott 1980; Champagne 1977; Wulkowicz and Saleem 1974).

A study of 28 streams in the Sierra Nevada found noticeably higher chloride concentrations at stream locations that crossed salt-treated highways than at upstream locations far from the highway (e.g., 50 to 70 mg/L versus 0 to 10 mg/L) (Hoffman et al. 1981). Studies of small creeks and drainage basins in Illinois and New York found maximum chloride concentrations that exceeded 500 mg/L during late winter and early spring thaws (Bubeck et al. 1971; Walker and Wood 1973; Diment et al. 1973; Hawkins and Judd 1972; Scott 1979). In contrast, Hutchinson found that the effect of road salt on sodium and chloride levels in seven Maine streams and rivers was compensated for by the increased flow associated with the spring snowmelt (Hutchinson 1970).

Like most studies of salt's impacts on the environment, investigations of stream and river impacts have been site specific, and findings have been largely circumstantial. Evidence, however, consistently points toward the general conclusion that salt concentrations diminish rapidly as water volume and distance from the roadway increase. Hence, small streams and creeks running adjacent to heavily traveled, salt-treated highways are more likely to be affected by salt runoff than larger streams and rivers, which are likely to experience comparatively minor impacts.

Lakes and Ponds

Some correlation has been found between salting activity and higher sodium and chloride concentrations in lakes and ponds. However, unlike small streams and creeks, ponds and lakes are often recharged by a large and varied watershed (including groundwater), which increases dilution and complicates efforts to identify specific sources of chloride and sodium. As an example, Hutchinson found that chloride concentrations in small roadside ponds in Maine varied from less than 5 to more than 100 mg/L, often for reasons only partially related to road salt usage (Hutchinson 1966).

Determination of sources of sodium and chloride concentrations in larger lakes is even more complicated because of the potential for many industrial and residential sources of sodium and chloride, particularly in urban areas. For example, chloride concentrations have been rising in the Great Lakes since the beginning of the century; however, it is not clear how these increases have been affected by road salt, because the upward trend began long before the widespread use of deicing chemicals (Bowden 1981; Kenaga 1978; Fromme 1971). Meanwhile, Lake George in New York and Lake Tahoe in California and Nevada, large rural lakes in regions with heavy salt use (e.g., to clear roads for ski resorts), have shown little change in sodium and chloride concentrations over time (Lipka and Aulenbach 1976; Goldman, unpublished data).

Aquatic Life

In general, the impacts of salt concentrations from highway deicing on water life are thought to be minor. Whereas high and sustained chloride concentrations in surface waters (more than 1000 mg/L) have been linked to growth changes in some plankton (Stewart 1974; Antonyan and Pinevich 1967), field studies indicate that such high concentrations are uncommon (Goldman and Hoffman 1975; Kersey 1981; Molles 1980). The extreme chloride concentrations that are harmful to fish (400 to 12 000 mg/L) are rarely generated by highway deicing (Schraufnagel 1973; Jones et al. 1986).

In theory, a salt load to a lake or pond will sink to the bottom because of its higher density. This effect can reduce water circulation and reaeration in lower depths, which can lead to loss of dissolved oxygen and mortality of organisms inhabiting this region (Hawkins and Judd 1972). Prolonged periods of reduced oxygen can result in increased nutrient loading at the stream or lake bottom, which could increase spring and summer algal growth, which, in turn, may further deplete dissolved oxygen. In the literature, however, few incidents of this extreme effect have been reported, the most notable being Irondequoit Bay near Rochester, New York (Bubeck et al. 1971).

Groundwater

Highway salt enters groundwater in several ways. Runoff from highways can flow from the pavement into unlined ditches and infiltrate surrounding soil. Road salt applied during snowstorms is generally plowed off the roadway and paved shoulder. When the resulting snowbanks melt, the meltwater, together with the dissolved salt, can migrate through soil and move to the water table. Groundwater supplies nearly half of the U.S. population with household water (Bouwer 1978). Hence, the potential for road salt to contaminate groundwater has become a concern in several parts of the country, especially in the Northeast, where salt use is heavy. Because this concern is related primarily to salt in drinking water and its impact on health, discussion of effects on groundwater is reserved for the following chapter.

SOIL

Road salt's impacts on vegetation and water are linked to its movement through soil, which is one reason to consider salt's impact on soil. Soil also merits separate attention because it affects other factors, such as roadside stability.

The infiltration of salt into soil depends on a variety of site-specific factors. Because most salt is plowed or splashed off the pavement, the highest salt concentrations are usually found near the shoulders of the roadway (Murray and Ernst 1976). When salt is transported by highway runoff, the transport distance usually depends on local features and conditions, such as the slope of the roadside, direction of drainage, type of highway drainage system, soil type, vegetative cover, presence of snow and ice, and precipitation (Colwill et al. 1982).

The downward transport of salt through soil is often slow and dependent on the drainage, or infiltration, characteristics of the soil.

Table 1 Surface Water Field Measurements November 22, 2005 Cherry Blossom LLC

ISE Project #02061

Sample ID	A	A	В	В	В	С
Sample Location	Main Retention Pond	Main Retention Pond	Upper Parking Level Retention Pond	Upper Parking Level Retention Pond	Upper Parking Level Retention Pond	Lower Retention Pond (behind Maint. Bldg)
Date Collected	11/22/05	11/23/05	11/22/05	11/22/05	11/23/05	11/22/05
Date Extracted	NA	NA	NA	NA	NA	NA
Date Analyzed	11/22/05	In Process	11/22/05	11/22/05	In Process	11/22/05
Collection Method	Grab	Grab	Grab	Grab	Grab	Grab
Analytical Method No.	NA	325.2	NA	NA	325.2	NA
Dissolved Oxygen (mg/L)	1.57	NA	0.02	0.01	NA	7.34
Temperature (degrees C)	4.2	NA	3.3	3.3	NA	2.7
рН	5.33	NA	6.69	6.71	NA	6.83
Conductivity (mS/cm)	4.54	NA	0.66	0.63	NA	1.17
Chloride	NA	In Process	NA	NA	In Process	NA

NOTES:

NA: Not Analyzed

Table 1 Surface Water Field Measurements November 22, 2005

Cherry Blossom LLC

ISE Project #02061

	D	<u>D</u>	E	E	E
Lower Retention Pond (behind Maint. Bldg)	South side Angel, Tobeco Creek	South side Angel, Tobeco Creek	Off-Site	South side Angel, Off-Site Accumulation Area	South side Angel, Off-Site Accumulation Area
11/23/05	11/22/05	11/22/05	11/22/05	11/22/05	11/22/05
NA	NA	NA	NA	NA	NA
In Process	11/22/05	11/22/05	11/22/05	11/22/05	11/22/05
Grab	Grab	Grab	Grab	Grab	Grab
325.2	NA	NA	NA	NA	NA
NA	9.97	10.00	4.46	4.62	4.63
NA	1.3	1.4	1.0	0.8	0.6
NA	7.45	7.45	7.17	7.09	7.07
NA	0.36	0.36	0.36	0.41	0.42
In Process	NA	NA	NA	NA	NA
	Pond (behind Maint. Bldg) 11/23/05 NA In Process Grab 325.2 NA NA NA NA NA	Pond (behind Maint. Bldg) South side Angel, Tobeco Creek 11/23/05 11/22/05 NA NA In Process 11/22/05 Grab Grab 325.2 NA NA 9.97 NA 1.3 NA 7.45 NA 0.36	Pond (behind Maint. Bldg) South side Angel, Tobeco Creek South side Angel, Tobeco Creek 11/23/05 11/22/05 11/22/05 NA NA NA In Process 11/22/05 11/22/05 Grab Grab Grab 325.2 NA NA NA 9.97 10.00 NA 1.3 1.4 NA 7.45 7.45 NA 0.36 0.36	Lower Retention Pond (behind Maint. Bldg) Tobeco Creek Tobeco Creek Tobeco Creek Accumulation Area	Pond (behind Maint. Bldg) South side Angel, Tobeco Creek South side Angel, Tobeco Creek Accumulation Area Accumulation Area 11/23/05 11/22/05 11/22/05 11/22/05 11/22/05 11/22/05 NA NA NA NA NA NA In Process 11/22/05 11/22/05 11/22/05 11/22/05 11/22/05 Grab Grab Grab Grab Grab Grab NA NA NA NA NA NA NA NA 1.3 1.4 1.0 0.8 NA 7.45 7.45 7.17 7.09 NA 0.36 0.36 0.36 0.41

NOTES:

NA: Not Analyzed



MICHIGAN . PARTMENT OF ENVIRONMENTAL Q **ENVIRONMENTAL LABORATORY**

P.O. Box 30270 Lansing, MI 48909 TEL: (517) 335-9800 FAX: (517) 335-9600

Division: WB

Report to: SY PAULIK

MDEQ-WB-CADILLAC

CADILLAC DISTRICT OFFICE

120 W. CHAPIN STREET, CADILLAC, MI 49601

Total: \$461.44

Lab Work Order #: 50700165

Work Site ID: LB040160

Site Name: WILLIAMSBURG RECEIVI

Received: 07/19/2005

Reported: 07/28/2005

Collected By: SY PAULIK

Samples Received:

No: Sample ID **Sample Description** 01 AA59337 SWE-01 02 AA59338 WR-02

Matrix:

WATER

Collection Date 07/15/2005

WATER

07/15/2005

I certify that the analysis performed by the MDEQ Environmental Laboratory are accurate and that the laboratory tests were conducted by methods approved by the U.S. Environmental Protection Agency and other appropriate regulatory agencies.

Bob Avery, Laboratory Director



MICHIGA) EPARTMENT OF ENVIRONMENTAL, 'ALITY ENVIRONMENTAL LABORATORY

P.O. Box 30270 Lansing, MI 48909 TEL: (517) 335-9800 FAX: (517) 335-9600

Sample	Number AA59337	SWE-01						
CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
16887006	Chloride	6770	mg/L	1	D	07/19/2005	325.2	LU
	Sulfate	770	mg/L	2	D	07/19/2005	375.2	LU 🔭 🖟 🖟
	BOD - Carbonaceous 5 days	5900	mg/L	2	Н	07/22/2005	405.1	GW
	BOD - Total 5 days	6300	mg/L	2	8 H	07/22/2005	405.1	GW
	KN TP - Digestion	Completed				07/26/2005	351.2	DS1
7723-14-0	Total Phosphorus	19	mg P/L	0.010		07/26/2005	365.4	DS1
7664-41-7	Ammonia	15.	mg N/L	0.01	P	07/26/2005	350.1	RA
7727-37-9	Nitrate + Nitrite	0.2	mg N/L	0.01	D P	07/26/2005	353.2	RA
	Conductance	20690	umhos/cm			07/20/2005	120.1	RM
	pH	4.50	pH			07/19/2005	150.1	RK .
	Priority 1 Costs	Completed				07/25/2005		SG
Sample	Number AA59338	WR-02						
CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
16887006	Chloride	1240	mg/L	1	D	07/19/2005	325.2	LU
	Sulfate	203	mg/L	2	D	07/19/2005	375.2	LU
	BOD - Carbonaceous 5 days	7700	mg/L	2	Н	07/22/2005	405.1	GW
	BOD - Total 5 days	6900	mg/L	2	8 H	07/22/2005	405.1	GW
	KN TP - Digestion	Completed				07/25/2005	351.2	DS1
723-14-0	Total Phosphorus	6.9	mg P/L	0.010	1 4	07/25/2005	365.4	DSI
664-41-7	Ammonia	0.7	mg N/L	0.01	I P	07/26/2005	350.1	RA
727-37-9	Nitrate + Nitrite	0.2	mg N/L	0.01	IP	07/26/2005	353.2	RA
OF SCHOOLSENS AS A SECOND	Conductance	6100	umhos/cm			07/20/2005	120.1	RM
ARTIST TO SECURITION OF THE PARTY OF THE PAR	pH	5.23	pH			07/19/2005	150.1	RK

CAS# : Chemical Abstract Service Registry Number

RL: Reporting Limit Not Detected

ug/L: microgram/liter (ppb) mg/L: milligram/liter (ppm) ug/Kg: microgram/kilogram (ppb) mg/Kg: milligram/kilogram (ppm)

Laboratory Contacts Inorganic Unit Mgr: Sandy Gregg
Organic Unit Mgr: Carol Smith
Systems Mgmt Unit: George Krisztian



MICHIGAN PARTMENT OF ENVIRONMENTAL Q LITY **ENVIRONMENTAL LABORATORY**

P.O. Box 30270 Lansing, MI 48909 TEL: (517) 335-9800 FAX: (517) 335-9600

Oualifier Code	Qualifier Description
1	Result(s) and RL(s) are estimated due to low surrogate recovery.
2	Result is estimated due to high surrogate recovery.
3	Result(s) and RL(s) are estimated due to low matrix spike recovery.
4	Result is estimated due to high matrix spike recovery.
5	Result and RL are estimated due to low continuing calibration standard criteria failure.
6	Result is estimated due to high continuing calibration standard criteria failure.
7	Result(s) and RL(s) are estimated due to poor precision.
8	Result(s) and RL(s) are estimated due to low recovery of batch QC.
9	Result outside QC acceptance criteria.
A	Value reported is the mean of two or more determinations.
c	Value calculated from other independent parameters.
D	Analyte value quantified from a dilution(s); reporting limit (RL) raised.
E	Result is estimated due to high recovery of batch QC.
F	Free cyanide was not analyzed due to low level of total cyanide.
G	Result and RL are estimated due to initial calibration standard criteria failure.
Н	Recommended laboratory holding time was exceeded.
I	Dilution required due to matrix interference; reporting limit (RL) raised.
J	Analyte was positively identified. Value is an estimate.
JA	Result is estimated due to multiple Aroclors present.
l lC	Result is estimated since confirmation analysis did not meet acceptance criteria
] JD	Due to severe degradation, specific Aroclor identification is difficult and quantitation is estimated.
K	RL(s) raised due to matrix interferences.
KR	RL(s) raised due to low sample volume submitted.
KS	RL(s) raised due to low total solids.
KW	RL(s) raised due to light sample weight.
LB	Reported library search compounds are tentative identifications with estimated concentrations.
M	The level of the method preparation blank (MPB) is reported in the qualifier column.
N	Non-homogeneous sample made analysis of sample questionable.
0	Result and RL estimated due to analysis from an open vial.
P	Recommended sample collection/preservation technique not used; reported result(s) is an estimate.
Q	Quantity of sample insufficient to perform analyses requested.
R	Result confirmed by re-extraction and analysis.
S	Supernatant analyzed.
T	Reported value is less than the reporting limit (RL). Result is estimated.
V	Value not available due to dilution.
w	Reported value is less than the method detection limit (MDL).
Х	Methods 8260 & 624 are used to analyze volatile organics that have boiling points below 200°C.
	2-Methylnaphthalene & naphthalene have boiling points above 200°C and are better suited to analysis
	by methods 8270 or 625 as semivolatile organics.
PI	Possible interference may have affected the accuracy of the laboratory result
Z	Result reported below the RL to meet the TDL in RRD Op Memo 2 (10/22/04) multiplied by
	applicable dilution factor.

CAS#: Chemical Abstract Service Registry Number

RL: Reporting Limit ND: Not Detected

ug / L : microgram / liter (ppb) mg/L: milligram/liter (ppm) ug / Kg : microgram / kilogram (ppb) mg / Kg : milligram / kilogram (ppm) **Laboratory Contacts**

Inorganic Unit Mgr. Sandy Gregg Organic Unit Mgr: Carol Smith Systems Mgmt Unit: George Krisztian

D	E
	4

MICHIGAN DEPT. OF ENVIRONMENTAL QU ENVIRONMENTAL LABORATORY

ΓY

White

			ENVIRONMENTAL LABORATORY								
LAB W	ORK ORDER#		ANALYSIS REQUEST SHEET								
		50033	<u> </u>	CIRCLE ONE. 2 NIDDEC					TRIX=WA	TER	
SITE CO	DE NUMBER •	SITE NAME		CIRCLE ONE	: 3. N	PDES			•		
	EB040160	Williamsburg Re	ecciving & Stor		. •					•	
	25040100	A linguishui & Ve	eceiving or Stor	age							
UNISIO	N :	DISTRICT/OFFICE	MDEO PROJEC	CT MANAGER	E-MAIL A	DDRESS	PHON	E	ACCEPT IT	CODES?	
WB		District Office	Sy Paulik		Paulius@mi	chigan.guv	231-775-3960	0 x 62o7	f yes, which	TES / NO	
RIMAL	RY CONTACT PER	ISON CONTRACT	FIRM NAME (H s	pplicable)	PHONE	AY:	INDEX: 375	500	PCA: 79001	Dan uningrene :	
	Janice Heu		heueri@michigan.c		231-775-3960 x 62				PH:		
		OVERFLOW LAB (Required for F			231-110-3900 X 02		DRESSES TO SEND A	IANOITIGE			
ST		2ND CHOICE:		vir sampies)		1.)					
HOICE	-	<u></u>				<u> </u>				4	
1	311 15	u88				2.)			OPT	1	
	1	***	* SAFETY I	NFORMAT	ION REQUIR	ED ****	HAS BE	HEP	OFNIT	1	
			SE	EE BACK O	F FORM		BE	EN :	SEIV	1	
LA	B USE ONLY	SAMPLE DESCRIP	TION		E COLLECTED	T - T	11/10/10	EM	III .		
				DATE MM/DD/YY	TIME	1	VIA	MMENT			
	17.500	discharge in Paradi field		7/5/2005	2100	TDS & CL					
1	AA58362										
2	AA							63	21114		
	<u> </u>		 		 						
3	AA	<u> </u>		<u> </u>			1 4/1			1	
4	AA							JUL	2 7 2005	; ;;[
				 				₩	E LVV	- -	
5	AA			 	<u> </u>					· · · · ·	
6	AA							1000	3 DWI-1010	<u> </u>	
7	AA						CAD	ILLAC L	DISTRICT C	FFICE	
8	AA					+	 				
9 .	AA			ļ	ļ						
10	AA	-				J					
	ORGANI	С	GEI	NERAL CHE	MISTRY			INOR	GANIC		
			GN								
			GI.		_						
			Residue TDS			1)					
					À						
			·····	****							
		Pite to \$100 personal and decimal and deci				1					
			······			_ /	ONE SAMPLE				
						ſ	Ledura				
							1				
		-	**************************************)				
,											
		-				_	***************************************				
					•		MN				
							CI,				
		-				••••				~	
		RELEASED BY / ORGANIZ	ATION	wß	RECEIV	ED BY / ORG	ANIZATION		DATE	TIME	
	Print Name & S	CP IIL -	- DFM-		Print Name (1)	\bigcirc .	20120	XXX	7/.	0-	
_	Signature	y Laure			Organization Signature	->(0	A-15 Econs	~ ~	17/	09/0	
Chain-of-Custody	- Xes	1 dulik			- W]	5	0	
Sin 1	Print Name &				Print Name &						
걸	Organization V				Organization				İ		
흫ㅣ	Signature	•			Signature				1	Į	
ರ	Print Mame &			1	Print Name &			+			
	Organization	<u></u>	·		Organization				ł	ĺ	
F	Signature	:: 			Signature					1	
								i	1	H.	



EPARTMENT OF ENVIRONMENTAL (LITY MICHIGAN. **ENVIRONMENTAL LABORATORY**

P.O. Box 30270 Lansing, MI 48909 TEL: (517) 335-9800 FAX: (517) 335-9600

Division: WB

Report to: JANICE HEUER

MDEQ-WB-CADILLAC

CADILLAC DISTRICT OFFICE

120 W. CHAPIN STREET, CADILLAC, MI 49601

Total: \$79.76

Lab Work Order #:

50700213

Work Site ID:

LB040160

Site Name:

WILLIAMSBURG RECEIVI

Received: 07/21/2005

Reported: 07/26/2005

Collected By: JANICE HEUER

Samples Received:

No: Sample ID

Sample Description

01 AA59662

DITCH

Matrix:

Collection Date

WATER

07/19/2005

Sample Comments:

AA59662

PRIORITY 1

I certify that the analysis performed by the MDEQ Environmental Laboratory are accurate and that the laboratory tests were conducted by methods approved by the U.S. Environmental Protection Agency and other appropriate regulatory agencies.

Bob Avery, Laboratory Director



MICHIGA

EPARTMENT OF ENVIRONMENTAL ALITY **ENVIRONMENTAL LABORATORY**

P.O. Box 30270 Lansing, MI 48909 TEL: (517) 335-9800 FAX: (517) 335-9600

Sample	Number	AA59662	DITCH						
CAS#	Analyte Nam	ne	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
16887006	Chloride		1010	mg/L	1	D	07/22/2005	325.2	LU
TDS	Solids - Total	Dissolved	6800	mg/L	20		07/26/2005	160.1	RS
	Conductance	Control of the second of the control of the second of the	5560	umhos/cm		A Section of the Control of the Cont	07/22/2005	120.1	RM
	Solids - Suspe	ended	530	mg/L	4		07/25/2005	160.2	RS
and the same of th	Priority 1 Cos	sts	Completed	l	- The control of the Street of Street	Committee Committee and Committee of the Committee and Com	07/25/2005	The same transfer and the state of the same and the same	SG

CAS#: Chemical Abstract Service Registry Number

RL: Reporting Limit ND: Not Detected

ug / L: microgram / liter (ppb)

mg/L: milligram/liter (ppm)
ug/Kg: microgram/kilogram (ppb)
mg/Kg: milligram/kilogram (ppm)

Laboratory Contacts

Inorganic Unit Mgr. Sandy Gregg
Organic Unit Mgr. Carol Smith
Systems Mgmt Unit: George Krisztian



MICHIGAN EPARTMENT OF ENVIRONMENTAL Q LITY ENVIRONMENTAL LABORATORY

P.O. Box 30270 Lansing, MI 48909 TEL: (517) 335-9800 FAX: (517) 335-9600

Onalifier Code	Qualifier Description
1	Result(s) and RL(s) are estimated due to low surrogate recovery.
2	Result is estimated due to high surrogate recovery.
3	Result(s) and RL(s) are estimated due to low matrix spike recovery.
4	Result is estimated due to high matrix spike recovery.
5	Result and RL are estimated due to low continuing calibration standard criteria failure.
6	Result is estimated due to high continuing calibration standard criteria failure.
7	Result(s) and RL(s) are estimated due to poor precision.
8	Result(s) and RL(s) are estimated due to low recovery of batch QC.
9	Result outside QC acceptance criteria.
Α	Value reported is the mean of two or more determinations.
С	Value calculated from other independent parameters.
D	Analyte value quantified from a dilution(s); reporting limit (RL) raised.
Е	Result is estimated due to high recovery of batch QC.
F	Free cyanide was not analyzed due to low level of total cyanide.
G	Result and RL are estimated due to initial calibration standard criteria failure.
Н	Recommended laboratory holding time was exceeded.
I	Dilution required due to matrix interference; reporting limit (RL) raised.
J	Analyte was positively identified. Value is an estimate.
JA	Result is estimated due to multiple Aroclors present.
1C	Result is estimated since confirmation analysis did not meet acceptance criteria
JD	Due to severe degradation, specific Aroclor identification is difficult and quantitation is estimated.
K	RL(s) raised due to matrix interferences.
KR	RL(s) raised due to low sample volume submitted.
KS	RL(s) raised due to low total solids.
KW	RL(s) raised due to light sample weight.
LB	Reported library search compounds are tentative identifications with estimated concentrations.
M	The level of the method preparation blank (MPB) is reported in the qualifier column.
N	Non-homogeneous sample made analysis of sample questionable.
0	Result and RL estimated due to analysis from an open vial.
P	Recommended sample collection/preservation technique not used; reported result(s) is an estimate.
Q	Quantity of sample insufficient to perform analyses requested.
R	Result confirmed by re-extraction and analysis.
S	Supernatant analyzed.
T	Reported value is less than the reporting limit (RL). Result is estimated.
V	Value not available due to dilution.
W	Reported value is less than the method detection limit (MDL).
X	Methods 8260 & 624 are used to analyze volatile organics that have boiling points below 200°C.
	2-Methylnaphthalene & naphthalene have boiling points above 200°C and are better suited to analysis
	by methods 8270 or 625 as semivolatile organics.
PI	Possible interference may have affected the accuracy of the laboratory result
Z	Result reported below the RL to meet the TDL in RRD Op Memo 2 (10/22/04) multiplied by applicable dilution factor.

CAS#: Chemical Abstract Service Registry Number

RL: Reporting Limit
ND: Not Detected

ug/L: microgram/liter (ppb)
mg/L: milligram/liter (ppm)

mg/L: milligram/liter (ppm)
ug/Kg: microgram/kilogram (ppb)
mg/Kg: milligram/kilogram (ppm)

Laboratory Contacts

Inorganic Unit Mgr. Sandy Gregg Organic Unit Mgr. Carol Smith Systems Mgmt Unit: George Krisztian



MICHIGAN LPARTMENT OF ENVIRONMENTAL (LITY ENVIRONMENTAL LABORATORY

WRS GT Co

P.O. Box 30270 Lansing, MI 48909 TEL: (517) 335-9800 FAX: (517) 335-9600

Division: WB

Report to: SY PAULIK

MDEO-WB-CADILLAC

CADILLAC DISTRICT OFFICE

120 W. CHAPIN STREET, CADILLAC, MI 49601

Total: \$1,027.80

Lab Work Order #: 50700108

Work Site ID: LB040160

Site Name: WILLIAMSBURG RECEIVI

Received: 07/13/2005 **Reported:** 07/22/2005

Collected By: SY PAULIK & GREG GAUD

Samples Received:

No: Samp	le ID Sample Description	Matrix:	Collection Date
01 AA58	909 WR01	WATER	07/12/2005
02 AA58	910 WR02	WATER	07/12/2005
03 AA58	911 WR03	WATER	07/12/2005

I certify that the analysis performed by the MDEQ Environmental Laboratory are accurate and that the laboratory tests were conducted by methods approved by the U.S. Environmental Protection Agency and other appropriate regulatory agencies.

Bob Avery, Laboratory Director





MICHIGAL EPARTMENT OF ENVIRONMENTAL (LITY ENVIRONMENTAL LABORATORY

P.O. Box 30270 Lansing, MI 48909 TEL: (517) 335-9800 FAX: (517) 335-9600

Sample	Number AA589	09 WR01						
CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
16887006	Chloride	1550	mg/L	1	D	07/14/2005	325.2	LU
	Sulfate	623	mg/L	2	D	07/15/2005	375.2	LU
A STATE OF THE PROPERTY OF THE STATE OF THE	BOD - Carbonaceous 5 day	ys 17000	mg/L	2	र भज्ञान्त्रम् व्यामा अन्त्र अन्त्र भूति भागता व्यामाव्य	07/14/2005	405.1	GW
	BOD - Total 5 days	14000	mg/L	2		07/14/2005	405.1	ĠW
TDS	Solids - Total Dissolved	11000	mg/L	20	2-14-20-14-20-1-1-2-1-4-1-1-4-2-1-4-2-1-4-2-1-4-2-1-4-2-1-4-2-1-4-2-1-4-2-1-4-2-1-4-2-1-4-2-1-4-2-1-4-2-1-4-2	07/19/2005	160.1	TK
	KN TP - Digestion	Completed				07/20/2005	351.2	DSI
7723-14-0	Total Phosphorus	25	mg P/L	0.010	HONOR OF COMPANY WARRY SOUTH STATE OF THE ST	07/20/2005	365.4	DS1
7664-41-7	Ammonia	32.	mg N/L	0.01	D	07/14/2005	350.1	RA
7727-37-9	Nitrate + Nitrite	ND	mg N/L	0.01	D	07/14/2005	353.2	RA
	RL = 0.2 mg/L							
14797650	Nitrite	.23	mg N/L	0.01		07/14/2005	353.3	EG
	Conductance	7580	umhos/cm			07/14/2005	120.1	RM
	pH	4,39	pH			07/13/2005	150.1	RS
	Solids - Suspended	1000	mg/L	4		07/18/2005	160.2	TK
证实是现在是自己的证明的证明的				0.5	D	07/19/2005	415.1	MB
7440-44-0	TOC	5900	mg/L	U.J		0111112002	是是我们的特殊的	建设加强的基础的企业的企业的企业的企业的企业 的
7440-44-0	Priority 1 Costs	Completed	myL	0.5		07/15/2005	4454	CS
Sample	Priority 1 Costs Number AA589	Completed 10 WR02		a Agus Mhailleann an t-Airteannach an deann an t-Airteann an t-Airteann an t-Airteann an t-Airteann an t-Airte	· · · · · · · · · · · · · · · · · · ·	07/15/2005		CS
Sample	Priority 1 Costs Number AA589 Analyte Name	Completed 10 WR02 Result	Unit	RL	Qualifier	07/15/2005 Date Tested	Method	CS Analyst
Sample	Priority 1 Costs Number AA589 Analyte Name Chloride	Completed 10 WR02 Result 1280	Unit mg/L	RL 1	Qualifier D	07/15/2005 Date Tested 07/14/2005	Method 325.2	CS Analyst LU
Sample	Priority 1 Costs Number AA589 Analyte Name Chloride Sulfate	Completed 10 WR02 Result 1280 213	Unit mg/L mg/L	RL 1	Qualifier	07/15/2005 Date Tested 07/14/2005 07/15/2005	Method 325.2 375.2	CS Analyst LU
Sample	Priority 1 Costs Number AA589 Analyte Name Chloride Sulfate BOD - Carbonaceous 5 day	Completed 10 WR02 Result 1280 213 75 12000	Unit mg/L mg/L mg/L	RL 1 2 2	Qualifier D	07/15/2005 Date Tested 07/14/2005 07/15/2005 07/14/2005	Method 325.2 375.2 405.1	CS Analyst LU EU GW
Sample CAS# 6887006	Priority 1 Costs Number AA589 Analyte Name Chloride Sulfate BOD - Carbonaceous 5 day BOD - Total 5 days	Completed 10 WR02 Result 1280 213 12000 9300	Unit mg/L mg/L mg/L mg/L	RL 1 2 2 2 2 2	Qualifier D	07/15/2005 Date Tested 07/14/2005 07/15/2005 07/14/2005 07/14/2005	Method 325.2 375.2 405.1 405.1	CS Analyst LU LU GW GW
Sample CAS# 16887006	Priority 1 Costs Number AA589 Analyte Name Chloride Sulfate BOD - Carbonaceous 5 day BOD - Total 5 days Solids - Total Dissolved	Completed 10 WR02 Result 1280 213 75 12000 9300 8100	Unit mg/L mg/L mg/L	RL 1 2 2	Qualifier D	07/15/2005 Date Tested 07/14/2005 07/15/2005 07/14/2005 07/14/2005 07/19/2005	Method 325.2 375.2 405.1 405.1 160.1	CS Analyst LU LU GW GW TK
Sample CAS# 16887006	Priority 1 Costs Number AA589 Analyte Name Chloride Sulfate BOD - Carbonaceous 5 day BOD - Total 5 days Solids - Total Dissolved KN TP - Digestion	Completed 10 WR02 Result 1280 213 78 12000 9300 8100 Completed	Unit mg/L mg/L mg/L mg/L mg/L mg/L	RL 1 2 2 2 2 20	Qualifier D D	07/15/2005 Date Tested 07/14/2005 07/15/2005 07/14/2005 07/14/2005 07/19/2005 07/18/2005	Method 325.2 375.2 405.1 405.1 160.1 351.2	CS Analyst LU LU GW GW TK DS1
Sample CAS# 16887006	Priority 1 Costs Number AA589 Analyte Name Chloride Sulfate BOD - Carbonaceous 5 day BOD - Total 5 days Solids - Total Dissolved KN TP - Digestion Total Phosphorus	Completed 10 WR02 Result 1280 213 78 12000 9300 8100 Completed 8.1	Unit mg/L mg/L mg/L mg/L mg/L mg/L	RL 1 2 2 2 2 20	Qualifier D	07/15/2005 Date Tested 07/14/2005 07/15/2005 07/14/2005 07/14/2005 07/19/2005 07/18/2005 07/18/2005	Method 325.2 375.2 405.1 405.1 160.1 351.2 365.4	CS Analyst LU LU GW GW TK DS1 DS1
Sample CAS# 16887006 TDS 7723-14-0 7664-41-7	Priority 1 Costs Number AA589 Analyte Name Chloride Sulfate BOD - Carbonaceous 5 day BOD - Total 5 days Solids - Total Dissolved KN TP - Digestion Total Phosphorus Ammonia	Completed 10 WR02 Result 1280 213 78 12000 9300 8100 Completed 8.1 7.7	Unit mg/L mg/L mg/L mg/L mg/L mg/L mg/L	RL 1 2 2 2 2 20 0.010 0.01	Qualifier D D	07/15/2005 Date Tested 07/14/2005 07/15/2005 07/14/2005 07/14/2005 07/18/2005 07/18/2005 07/18/2005 07/14/2005	Method 325.2 375.2 405.1 405.1 160.1 351.2 365.4 350.1	CS Analyst LU LU GW GW TK DS1 DS1 RA
Sample CAS# 6887006 TDS 1723-14-0 664-41-7 7727-37-9	Priority 1 Costs Number AA589 Analyte Name Chloride Sulfate BOD - Carbonaceous 5 day BOD - Total 5 days Solids - Total Dissolved KN TP - Digestion Total Phosphorus Ammonia Nitrate + Nitrite	Completed 10 WR02 Result 1280 213 78 12000 9300 8100 Completed 8.1 7.7 0.2	Unit mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg P/L mg N/L mg N/L	RL 1 2 2 2 2 20 0.010 0.01 0.01	Qualifier D D	07/15/2005 Date Tested 07/14/2005 07/15/2005 07/14/2005 07/14/2005 07/18/2005 07/18/2005 07/14/2005 07/14/2005	Method 325.2 375.2 405.1 405.1 160.1 351.2 365.4 350.1 353.2	CS Analyst LU LU GW GW TK DS1 DS1 RA RA
Sample CAS# 16887006 1723-14-0 17664-41-7 1727-37-9	Priority 1 Costs Number AA589 Analyte Name Chloride Sulfate BOD - Carbonaceous 5 day BOD - Total 5 days Solids - Total Dissolved KN TP - Digestion Total Phosphorus Ammonia Nitrate + Nitrite Nitrite	Completed 10 WR02 Result 1280 213 78 12000 9300 8100 Completed 8.1 7.7	Unit mg/L mg/L mg/L mg/L mg/L mg/L mg/L	RL 1 2 2 2 2 20 0.010 0.01	Qualifier D D	07/15/2005 Date Tested 07/14/2005 07/15/2005 07/14/2005 07/14/2005 07/18/2005 07/18/2005 07/18/2005 07/14/2005	Method 325.2 375.2 405.1 405.1 160.1 351.2 365.4 350.1	CS Analyst LU LU GW GW TK DS1 DS1 RA
Sample CAS# 6887006 TDS 1723-14-0 664-41-7 7727-37-9	Priority 1 Costs Number AA589 Analyte Name Chloride Sulfate BOD - Carbonaceous 5 day BOD - Total 5 days Solids - Total Dissolved KN TP - Digestion Total Phosphorus Ammonia Nitrate + Nitrite Nitrite RL = .10	Completed 10 WR02 Result 1280 213 78 12000 9300 8100 Completed 8.1 7.7 0.2 12	Unit mg/L mg/L mg/L mg/L mg/L mg/L mg N/L mg N/L mg N/L mg N/L	RL 1 2 2 2 2 20 0.010 0.01 0.01	Qualifier D D	07/15/2005 Date Tested 07/14/2005 07/15/2005 07/14/2005 07/14/2005 07/18/2005 07/18/2005 07/14/2005 07/14/2005 07/14/2005	Method 325.2 375.2 405.1 405.1 160.1 351.2 365.4 350.1 353.2 353.3	CS Analyst LU LÜ GW GW TK DS1 DS1 RA RA RA EG
Sample CAS# 16887006 1723-14-0 17664-41-7 1727-37-9	Priority 1 Costs Number AA589 Analyte Name Chloride Sulfate BOD - Carbonaceous 5 day BOD - Total 5 days Solids - Total Dissolved KN TP - Digestion Total Phosphorus Ammonia Nitrate + Nitrite Nitrite RL = 10 Conductance	Completed 10 WR02 Result 1280 213 78 12000 9300 8100 Completed 8.1 7.7 0.2 12 6070	Unit mg/L mg/L mg/L mg/L mg/L mg/L mg N/L mg N/L mg N/L mg N/L umhos/cm	RL 1 2 2 2 2 20 0.010 0.01 0.01	Qualifier D D	07/15/2005 Date Tested 07/14/2005 07/15/2005 07/15/2005 07/14/2005 07/14/2005 07/18/2005 07/18/2005 07/14/2005 07/14/2005 07/14/2005	Method 325.2 375.2 405.1 405.1 160.1 351.2 365.4 350.1 353.2 353.3	CS Analyst LU LU GW GW TK DS1 DS1 RA RA RA EG
· 3·1年至秦36年李明中,	Priority 1 Costs Number AA589 Analyte Name Chloride Sulfate BOD - Carbonaceous 5 day BOD - Total 5 days Solids - Total Dissolved KN TP - Digestion Total Phosphorus Ammonia Nitrate + Nitrite Nitrite RL = .10	Completed 10 WR02 Result 1280 213 78 12000 9300 8100 Completed 8.1 7.7 0.2 12	Unit mg/L mg/L mg/L mg/L mg/L mg/L mg N/L mg N/L mg N/L mg N/L	RL 1 2 2 2 2 20 0.010 0.01 0.01	Qualifier D D	07/15/2005 Date Tested 07/14/2005 07/15/2005 07/14/2005 07/14/2005 07/18/2005 07/18/2005 07/14/2005 07/14/2005 07/14/2005	Method 325.2 375.2 405.1 405.1 160.1 351.2 365.4 350.1 353.2 353.3	CS Analyst LU LÜ GW GW TK DS1 DS1 RA RA RA EG

CAS#: Chemical Abstract Service Registry Number

RL: Reporting Limit
ND: Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts

Inorganic Unit Mgr. Sandy Gregg
Organic Unit Mgr. Carol Smith
Systems Mgmt Unit: George Krisztian



PARTMENT OF ENVIRONMENTAL Q **MICHIGAN** LITY ENVIRONMENTAL LABORATORY

P.O. Box 30270 Lansing, MI 48909 TEL: (517) 335-9800 FAX: (517) 335-9600

Sample	Number	AA58911	WR03						
CAS#	Analyte Nam	e	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
16887006	Chloride		1270	mg/L	1	D	07/14/2005	325.2	LU
	Sulfate		201	mg/L	2	D	07/15/2005	375.2	LU .
entrational and the section of the s	BOD - Carbon	naceous 5 days	10000	mg/L	2		07/14/2005	405.1	GW
	BOD - Total 5	5 days	14000	mg/L	2		07/14/2005	405.1	GW
TDS	Solids - Total	Dissolved	8500	mg/L	20	Α	07/19/2005	160.1	TK
	KN TP - Dige	stion	Completed	1			07/18/2005	351,2	DS1
7723-14-0	Total Phospho	orus	7.0	mg P/L	0.010	I	07/18/2005	365.4	DS1
7664-41-7	Ammonia		10.	mg N/L	0.01		07/14/2005	350.1	RA
7727-37-9	Nitrate + Nitri	ite	0.1	mg N/L	0.01	D	07/14/2005	353.2	RA
14797650	Nitrite RL = .10		.11	mg N/L	0.01	D	07/14/2005	353.3	EG
per amparage sarage sort or appropriate	Conductance		5980	umhos/cm			07/14/2005	120.1	RM
	pH		4.59	pH			07/13/2005	150.1	RS
and the state of t	Solids - Suspe	ended	46	mg/L	4		07/19/2005	160.2	TK
7440-44-0	TOC		4100	mg/L	0.5	D	07/19/2005	415.1	MB

CAS#: Chemical Abstract Service Registry Number

RL: Reporting Limit ND: Not Detected

ug / L : microgram / liter (ppb) mg / L: milligram / liter (ppm) ug / Kg : microgram / kilogram (ppb) mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts

Inorganic Unit Mgr: Sandy Gregg
Organic Unit Mgr: Carol Smith
Systems Mgmt Unit: George Krisztian



MICHIGAN PARTMENT OF ENVIRONMENTAL Q LITY ENVIRONMENTAL LABORATORY

P.O. Box 30270 Lansing, MI 48909 TEL: (517) 335-9800 FAX: (517) 335-9600

Qualifier Code	Qualifier Description
1	Result(s) and RL(s) are estimated due to low surrogate recovery.
2	Result is estimated due to high surrogate recovery.
3	Result(s) and RL(s) are estimated due to low matrix spike recovery.
4	Result is estimated due to high matrix spike recovery.
5	Result and RL are estimated due to low continuing calibration standard criteria failure.
6	Result is estimated due to high continuing calibration standard criteria failure.
7	Result(s) and RL(s) are estimated due to poor precision.
8	Result(s) and RL(s) are estimated due to low recovery of batch QC.
9	Result outside QC acceptance criteria.
A	Value reported is the mean of two or more determinations.
C	Value calculated from other independent parameters.
D	Analyte value quantified from a dilution(s); reporting limit (RL) raised.
Е	Result is estimated due to high recovery of batch QC.
F	Free cyanide was not analyzed due to low level of total cyanide.
G	Result and RL are estimated due to initial calibration standard criteria failure.
H	Recommended laboratory holding time was exceeded.
I	Dilution required due to matrix interference; reporting limit (RL) raised.
J	Analyte was positively identified. Value is an estimate.
JA	Result is estimated due to multiple Aroclors present.
JC	Result is estimated since confirmation analysis did not meet acceptance criteria
JD	Due to severe degradation, specific Aroclor identification is difficult and quantitation is estimated.
K	RL(s) raised due to matrix interferences.
KR	RL(s) raised due to low sample volume submitted.
KS	RL(s) raised due to low total solids.
KW	RL(s) raised due to light sample weight.
LB	Reported library search compounds are tentative identifications with estimated concentrations.
M	The level of the method preparation blank (MPB) is reported in the qualifier column.
N	Non-homogeneous sample made analysis of sample questionable.
0	Result and RL estimated due to analysis from an open vial.
P	Recommended sample collection/preservation technique not used; reported result(s) is an estimate.
Q	Quantity of sample insufficient to perform analyses requested.
R	Result confirmed by re-extraction and analysis.
S	Supernatant analyzed.
T	Reported value is less than the reporting limit (RL). Result is estimated.
V	Value not available due to dilution.
W	Reported value is less than the method detection limit (MDL). Method 9360 % 624 are used to analyze valetile argenies that have beiling points below 300%
X	Methods 8260 & 624 are used to analyze volatile organics that have boiling points below 200°C.
	2-Methylnaphthalene & naphthalene have boiling points above 200°C and are better suited to analysis
PI	by methods 8270 or 625 as semivolatile organics. Possible interference may have affected the accuracy of the laboratory result
Z	Result reported below the RL to meet the TDL in RRD Op Memo 2 (10/22/04) multiplied by
	applicable dilution factor.
	appricable ununon racion.

CAS# : Chemical Abstract Service Registry Number

RL: Reporting Limit
ND: Not Detected

ug / L: microgram / liter (ppb) mg / L: milligram / liter (ppm) ug / Kg: microgram / kilogram (ppb) mg / Kg: milligram / kilogram (ppm) Laboratory Contacts

Inorganic Unit Mgr: Sandy Gregg
Organic Unit Mgr: Carol Smith
Systems Mgmt Unit: George Krisztian

MICHIGAN DEPT. OF ENVIRONMENTAL QUALITY ENVIRONMENTAL LABORATORY

White

Mar 4	ODI ODDED #			- EN		AL LABORATO		-		
LABW	ORK ORDER#				ANALYSI	S REQUEST SH	EEI		MATON-11	4 704345
SITE	ODE NUMBER		SITE NAM	E.	CIRCLE ONE:	1. NO SITE FU	INDING	5. RRD-CLEAN	MATRIX=W	
()	obe NUMBER Hiamsbur Hovazl	Pagi			cincen orași	2. CMI (Non R		6. RRD-LUST -		inded
100	Mansbur	g ceces	Just 1			3. NPDES	KD)	7. RRD-SUPER		
3	tovase	J	O			4. OTHER-list	hora - (-1). KKD-SOTER	rund- reder	aı
DIVISIO		DISTRICT/O		MDEO PROJEC	TMANACED		ADDRESS	PHONE	Del ACCEPTI	Pr (10) Press
1.7	12	Visiting.	(10)	< D	0. 1		,	231-775		IT CODES? YES / NO
0	O	Caco	Wee	Dy ran	tue t	tuliks (e micho	gan. Cov Xlool	If yes, whi	ch parameters?
PRIMA	RY CONTACT PER	RSON	CONTRAC	FIRM NAME (if a	(pplicable)	PHONE	AY:	MINDEX: 37506) PCA: 79	001
							PROJEC	T:	PH:	
		OVERFLOW I	AB (Required for	Funded RRD & C!	(11 samples)		E-MAIL ADD	PRESSES TO SEND ADDITION	NAL REPORTS T	0:
IST			2ND CHOIC		,		1110	10000000000	himmo c	200
CHOICE	LLECTED BY:				PHONE:		-1.7 10	uar @mic	1900	
5	De Orlon	Gross	(39 du		THORE.		2.)			
34	Faute	1	The state of the s	** SAFETY I	NEODMAT	ION DECLUD	ED ****			
'		0	0			_	ED			
				SE	E BACK O					
L	LAB USE ONLY SAMPLE DESCRIP			PTION		COLLECTED	_	COMM	A PROPERTY.	
				DATE MNI/DD/Y	TIME MILITARY		COMME	NIS		
×.		1,00	- 1		11	0 1		1.		, .
1	AA	WK			7/12/05	19:45	00	1dena a	ca n	in dux
		1000	2		11-1-	A 2122	1	a W.		٨
2	AA	UKL	10/		7/12/05	20:00	IN	Dona i	M Ou O	Mar
	1	100	72		11 11 2	aD:15	11		0,.	.0.
3	AA	WK			11/2/50	0(0,10	カンプラ	DIDEL HOW	131711	Gris
4	AA				1		0'	()		
5	AA						<u> </u>		·	
6	AA									
		-								
7	AA									
8	AA									
9	AA									
10	ORGANI	<u> </u>		CEN	NERAL CHEM	HISTRY		INC	DRGANIC	
VOA	VOLATILES (8260			DO Diss Oxygen	The second second second second second	1 2 3 4 5 6 7 8 5	10	MA Total Metals	1 2 3 4 5 6	7 8 0 10
Full List		1234567	8 9 10	GN NO: outline		1 2 3)4 5 6 7 8 9		MAD Diss-Field Filterer		
BTEX/M	TBE/TMB only	1234567	8 9 10	Residue SS	1	23456785	10	MD Diss-Lab Filtered		
				Residue TDS		2 3 4 5 6 7 8 9		Circle Requested Meta	-	
ON	PESTICIDES/PCBS (8081/8082)			BOD Tot 5 day		23456789		MICH TEN METALS (As, Ba, Cd, Cr, Cu, Pb	1 2 3 4 5 6 1	
n			0.0.10		**	-			ng, se. Ag, Zn)	
Pesticides Pesticides		1234567		BOD Carb 5 day Turbidity		2 3 4 5 6 7 8 9		ICP-MS (200.8/6020) Cd Cr Cu Ni Pb Zn	123456	7 8 9 10
PCBs only		1 2 3 4 5 6 7			***************************************			As Ba Se Ag	123456	
				CA Chlorophyll		2 3 4 5 6 7 8 9	10	Co Mn Sb Sr Tl	1 2 3 4 5 6	
BNA	BASE NEUTRAL &	ACIDS		C1 00P		221667200	10	Al Be Mo Ti V	123456	7 8 9 10
BNAs	(8270)	234567	8 9 10	TOC	4	23456789		ICP (200.7/6010) B Fe Li	123456	7 8 9 10
PNAs only		234567		NO3 + NO2. NH	3 1	23456789		Flame AA (200/7000 Se		
BNs only		2 3 4 5 6 7		Tot P		2 3 4 5 6 7 8 9		Ca Mg Na K	1 2 3 4 5 6	
ACIDs on	ly	2 3 4 5 6 7	8 9 10	S Sulfide		23456789	_10	Hardness	1 2 3 4 5 6	7 8 9 10
	SPECIAL	REQUESTS		GP Phenolics	1	2 3 4 5 6 7 8 9	10	Cold Vapor AA (245.1/ Hg	1 2 3 4 5 6	7 8 9 10
	rch (Qualitative)			***************************************		***************************************			Marine	
Volatiles Semivolat		2 3 4 5 6 7 8		GB Total CN Amenable CN		2 3 4 5 6 7 8 9 2 3 4 5 6 7 8 9		MN pH, Conductance Cl, SO ₄ , Total Alk	123456	
FingerPrin		234567		GCN Available CN		2 3 4 5 6 7 8 9		\$100,00.	123456	
. mgeni in				OG Oil & Grease		2 3 4 5 6 7 8 9	*****	C-16	123456	
T		RELEASI	ED BY / ORGANI	ZATION		RECEIV	ED BY / ORGA	NIZATION	DATE	TIME
- 1	Print Name &		1-1	11/1/	2 //P	rint Name &				
	Organization)	4 / Jan	lik	TUL	001,1160	rganization				1 #
Ą,	Signature	())	041	•	Si	ignature				
sto	(Xfin	Tim	Vill.							
ا ب	Print Name &	Danie	MOOR	DEQ CAU	Dune Pr	rint Name &	00	STIP 2 PE		1-
jo l	Organization	MUSIC	16xc161	DE 4 CF10	Name and Address of the Owner, where the Owner, where	rganization \	20	0176600	>/13/2.	15
	Cinnetus:				ISI	gnature C	_	-	3/	1.5
ig I	Signature (4/1/	Portor)	No.	05-	
hair	to	wilk	Porter		l Pr	int Name &	\rightarrow		0,-	
- 1	Print Name & Organization	wilk	Porter			int Name &) =		0,-	
	Print Name &	wilk	Porter		Oi) =		0,-	



MICHIGA **EPARTMENT OF ENVIRONMENTAL (** LITY ENVIRONMENTAL LABORATORY

P.O. Box 30270 Lansing, MI 48909 TEL: (517) 335-9800 FAX: (517) 335-9600

Division: WB

Report to: SY PAULIK

MDEQ-WB-CADILLAC

CADILLAC DISTRICT OFFICE

120 W. CHAPIN STREET, CADILLAC, MI 49601

Total: \$274.60

Lab Work Order #:

50600065

Work Site ID:

LB040160

Site Name: WILLIAMSBURG RECEIVI

Received:

06/07/2005

Reported:

06/29/2005

Collected By:

Samples Received:

No: Sample ID **Sample Description** 01 AA56224 STORM WATER POND 02 AA56225 STORM WATER POND 1

Matrix:

Collection Date

WATER WATER 06/06/2005 06/06/2005

I certify that the analysis performed by the MDEQ Environmental Laboratory are accurate and that the laboratory tests were conducted by methods approved by the U.S. Environmental Protection Agency and other appropriate regulatory agencies.

Bob Avery, Laboratory Director



MICHIGAL EPARTMENT OF ENVIRONMENTAL (

• ENVIRONMENTAL LABORATORY
P.O. Box 30270

LITY

Lansing, MI 48909 TEL: (517) 335-9800 FAX: (517) 335-9600

Sample	Number AA56224	STORM	I WATER	POND				
CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
16887006	Chloride	524	mg/L	1	D	06/09/2005	325.2	LU
	BOD - Carbonaceous 5 days	1300	mg/L	2		06/08/2005	405.1	GW
- Standard Strategy and Strategy and St	BOD - Total 5 days	1400	mg/L	2	tide and the authorities are defined if the authorities that it more than the residence of the and	06/08/2005	405.1	GW
rds .	Solids - Total Dissolved	2700	mg/L	20	A	06/10/2005	160.1	TK
1 69 TO A BEN TO HE WAS TRANSPORTED TO THE TO THE	KN TP - Digestion	Complete	d	HINE OF THE PARTY OF THE	(3) ALI (4) (3) PA (2) PA (3) PA	06/13/2005	351.2	DS1
723-14-0	Total Phosphorus	2.9	mg P/L	0.010		06/13/2005	365.4	DS1
664-41-7	Ammonia	2.8	mg N/L	0.01	ALTERNATION OF THE STATE OF THE	06/09/2005	350.1	RA
727-37-9	Nitrate + Nitrite	0.1	mg N/L	0.01	D	06/09/2005	353.2	RA
11115-4113-11114-1115-11114-1115-1111-1111	Conductance	2627	umhos/cm	State State Control State Strategy Association Strategy	OTTS COTS AND SHOTS OF TRANSPORTS OF THE TOP SHOTS A TRANSPORT	06/08/2005	120.1	RM
	pH	6.63	pH			06/07/2005	150.1	RS
and the state of t	Solids - Suspended	290	mg/L	4	Contract the and Opposite that I and Opposite that Opposite that Opposite the Add Physiol League (1974)	06/09/2005	160.2	TK
440-44-0	TOC	590	mg/L	0.5	D	06/10/2005	415.1	MB
	Turbidity	120	NTU	1	(100 mg	06/08/2005	180.1	GW
Sample	Number AA56225	STORM	WATER	POND	1			
CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
6887006	Chloride	518	mg/L	1	D	06/09/2005	325.2	LU
	BOD - Carbonaceous 5 days	3700	mg/L	2	Ή	06/08/2005	405.1	GW
	BOD - Total 5 days	3600	mg/L	2	8 H	06/08/2005	405.1	GW
'DS	Solids - Total Dissolved	4300	mg/L	20	Α	06/10/2005	160.1	TK
	Conductance	2638	umhos/cm			06/08/2005	120.1	RM
	pH	5.67	pH			06/07/2005	150.1	RS
	Solids - Suspended	240	mg/L	4		06/09/2005	160.2	TK
第五日中報告報報	Turbidity	90	NTU			06/08/2005	180.1	GW

CAS# : Chemical Abstract Service Registry Number

RL: Reporting Limit
ND: Not Detected

ug / L : microgram / liter (ppb)
mg / L : milligram / liter (ppm)
ug / Kg : microgram / kilogram (ppb)
mg / Kg : milligram / kilogram (ppm)

Laboratory Contacts

Inorganic Unit Mgr: Sandy Gregg
Organic Unit Mgr: Carol Smith
Systems Mgmt Unit: George Krisztian



MICHIGAN LPARTMENT OF ENVIRONMENTAL Q LITY ENVIRONMENTAL LABORATORY

P.O. Box 30270 Lansing, MI 48909 TEL: (517) 335-9800 FAX: (517) 335-9600

Qualifier Code	Qualifier Description
1	Result(s) and RL(s) are estimated due to low surrogate recovery.
2	Result is estimated due to high surrogate recovery.
3	Result(s) and RL(s) are estimated due to low matrix spike recovery.
4	Result is estimated due to high matrix spike recovery.
5	Result and RL are estimated due to low continuing calibration standard criteria failure.
6	Result is estimated due to high continuing calibration standard criteria failure.
7	Result(s) and RL(s) are estimated due to poor precision.
8	Result(s) and RL(s) are estimated due to low recovery of batch QC.
9	Result outside QC acceptance criteria.
A	Value reported is the mean of two or more determinations.
C	Value calculated from other independent parameters.
D	Analyte value quantified from a dilution(s); reporting limit (RL) raised.
E	Result is estimated due to high recovery of batch QC.
F	Free cyanide was not analyzed due to low level of total cyanide.
G	Result and RL are estimated due to initial calibration standard criteria failure.
Н	Recommended laboratory holding time was exceeded.
I	Dilution required due to matrix interference; reporting limit (RL) raised.
J	Analyte was positively identified. Value is an estimate.
JA	Result is estimated due to multiple Aroclors present.
JC	Result is estimated since confirmation analysis did not meet acceptance criteria
JD	Due to severe degradation, specific Aroclor identification is difficult and quantitation is estimated.
K	RL(s) raised due to matrix interferences.
KR	RL(s) raised due to low sample volume submitted.
KS	RL(s) raised due to low total solids.
KW	RL(s) raised due to light sample weight.
LB	Reported library search compounds are tentative identifications with estimated concentrations.
M	The level of the method preparation blank (MPB) is reported in the qualifier column.
N	Non-homogeneous sample made analysis of sample questionable.
0	Result and RL estimated due to analysis from an open vial.
P	Recommended sample collection/preservation technique not used; reported result(s) is an estimate.
Q	Quantity of sample insufficient to perform analyses requested.
R	Result confirmed by re-extraction and analysis.
S	Supernatant analyzed.
T	Reported value is less than the reporting limit (RL). Result is estimated.
V	Value not available due to dilution.
W	Reported value is less than the method detection limit (MDL).
X	Methods 8260 & 624 are used to analyze volatile organics that have boiling points below 200°C.
	2-Methylnaphthalene & naphthalene have boiling points above 200°C and are better suited to analysis
DI.	by methods 8270 or 625 as semivolatile organics.
PI	Possible interference may have affected the accuracy of the laboratory result
Z	Result reported below the RL to meet the TDL in RRD Op Memo 2 (10/22/04) multiplied by
	applicable dilution factor.

CAS#: Chemical Abstract Service Registry Number

RL: Reporting Limit
ND: Not Detected

ug / L : microgram / liter (ppb) mg / L : milligram / liter (ppm) ug / Kg : microgram / kilogram (ppb) mg / Kg : milligram / kilogram (ppm) Laboratory Contacts
Inorganic Unit Mgr: Sandy Gregg
Organic Unit Mgr: Carol Smith

Organic Unit Mgr: Carol Smith Systems Mgmt Unit: George Krisztian

WRS GIT CO



606 Franklin St., Traverse City, **MI** 49686 Phone (231) 922-4922 Fax (231) 922-8170

		PACSIMIL	E I KANSMII IAL
To:	Janice	Fax. No.:	(231)-775-151
		Fax. No.:	
From:	Liz Hart (OMI)	Date:	17-15-05
_		Pages:	(Including cover sheet)
RE:	m. 1105 sovember 1	Jesults á	2005

OPERATIONS MANAGEMENT INTERNATIONAL TRAVERSE CITY WASTEWATER TREATMENT PLANT

ANALYTICAL LABORATORY REPORT

CLIENT:DEQ REPORT DATE: 12-15-05

Sample ID	Sample Date	Analysis Date	Analysis	Units	Result
WRS	11-10-05	11-11-05	BOD	Mg/L	6,534
WRS	11-10-05	11-15-05	Chloride	Mg/L	1,050
					
					

Signature, Lab Analyst

Table 1 Water Analytical Results Pond Release Investigation Cherry Blossom LLC ISE Project #02061

Sample ID		A	A	В	В	В
Sample Location	DWC	Wastewater Pond, Area A	Wastewater Pond, Area A	Upper Parking Level Stormwater Retention Pond, Area B	Upper Parking Level Stormwater Retention Pond, Area B	Upper Parking Level Stormwater Retention Pond, Area B
Date Collected		11/22/05	11/23/05	11/22/05	11/22/05	11/23/05
Date Extracted		NA	NA	NA	NA	NA
Date Analyzed		11/22/05	11/29/05	11/22/05	11/22/05	11/29/05
Collection Method		Grab	Grab	Grab	Grab	Grab
Analytical Method No.		NA	20-Nov	NA	NA	20-Nov
Dissolved Oxygen (mg/L)		1.57	NA	0.02	0.01	NA
Temperature (degrees C)		4.2	NA	3.3	3.3	NA
pН		5.33	NA	6.69	6.71	NA
Conductivity (mS/cm)		4.54	NA	0.659	0.634	NA
Chloride (mg/L, PPM)	250	NA	865	NA	NA	105

NOTES:

NA: Not Analyzed

(E) -Criterion is the aesthetic

drinking water value

DWC - Residential & Commercial I Drinking Water Criteria & RBSLs

Table 1 Water Analytical Results Pond Release Investigation Cherry Blossom LLC ISE Project #02061

Sample ID		С	С	D	D	E
Sample Location	DWC	Lower Stormwater Retention Pond (behind Maint. Bldg), Area B	Lower Stormwater Retention Pond (behind Maint. Bldg), Area B	South side Angel, Tobeco Creek	South side Angel, Tobeco Creek	South side Angel, Off-Site Accumulation Area, Area D
Date Collected		11/22/05	11/23/05	11/22/05	11/22/05	11/22/05
Date Extracted		NA	NA	NA	NA	NA
Date Analyzed		11/22/05	11/29/05	11/22/05	11/22/05	11/22/05
Collection Method		Grab	Grab	Grab	Grab	Grab
Analytical Method No.		NA	20-Nov	NA	NA	NA
Dissolved Oxygen (mg/L)		7.34	NA	9.97	10	4.46
Temperature (degrees C)		2.7	NA	1.3	1.4	1
pН		6.83	NA	7.45	7.45	7.17
Conductivity (mS/cm)		1.17	NA	0.36	0.36	0.357
Chloride (mg/L, PPM)	250	NA .	200	NA	NA	NA

NOTES:

NA: Not Analyzed

(E) -Criterion is the aesthetic

drinking water value

DWC - Residential & Commercial I Drinking Water Cri

Table 1 Water Analytical Results Pond Release Investigation Cherry Blossom LLC ISE Project #02061

Sample ID		E	E	F	F	TMW-1	TMW-2
Sample Location	DWC	South side Angel, Off- Site Accumulation Area, Area D	South side Angel, Off-Site Accumulation Area, Area D	Surface Water Sample, Area D, WS- F (N)	Surface Water Sample, Area D, WS- F (S)	South, Area D	North, Area D
Date Collected		11/22/05	11/22/05	12/02/05	12/02/05	12/05/05	12/05/05
Date Extracted		NA	NA	NA	NA	NA	NA
Date Analyzed		11/22/05	11/22/05	12/06/05	12/06/05	12/07/05	12/07/05
Collection Method		Grab	Grab	Grab	Grab	Grb	Grab
Analytical Method No.		NA	NA	20-Nov	325.2	325.2	325.2
Dissolved Oxygen (mg/L)		4.62	4.63	NA	NA	NA	NA
Temperature (degrees C)		0.8	0.6	NA	NA	NA	NA
рН		7.09	7.07	NA	NA	NA	NA
Conductivity (mS/cm)		0.409	0.42	NA	NA	NA	NA
Chloride (mg/L, PPM)	250	NA	NA	28	36	184	52

NOTES:

NA: Not Analyzed

(E) -Criterion is the aesthetic

drinking water value

DWC - Residential & Commercial I Drinking Water Cri

ISE Project #02061

Sample ID		SB-101	SB-102	SB-103	SB-104	SB-105
Sample Location	Direct Contact Criteria & RBSLs	0-1'	0-1'	0-1'	0-1'	0-1'
Date Collected		11/23/05	11/23/05	11/23/05	11/23/05	11/23/05
Date Extracted		NA	NA	NA	NA	NA
Date Analyzed		11/29/05	12/06/05	11/29/05	12/07/05	12/07/05
Collection Method		Grab	Grab	Grab	Grab	Grab
Analytical Method No.		EPA 9251	EPA 9251	EPA 9251	EPA 9251	EPA 9251
Chloride (mg/kg, PPM)	500 (F)	1,500	30	464	328	228
Solids, Total (%)			86.9		86.3	82.5
Soil Moisture (%)		29.2	13.1	8.6	13.8	17.5

NOTES:

NA: Not Analyzed

(F): Criterion is based on adverse

impacts to plant life and

ISE Project #02061

Sample ID		SB-106	SB-107	SB-108	SB-109	SB-110
Sample Location	Direct Contact Criteria & RBSLs	0-1'	0-1'	0-1'	0-1'	0-1'
Date Collected		11/23/05	11/23/05	11/23/05	11/23/05	11/23/05
Date Extracted		NA	NA	NA	NA	NA
Date Analyzed		11/29/05	12/06/05	11/29/05	11/29/05	11/29/05
Collection Method		Grab	Grab	Grab	Grab	Grab
Analytical Method No.		EPA 9251	EPA 9251	EPA 9251	EPA 9251	EPA 9251
Chloride (mg/kg, PPM)	500 (F)	275	83	610	173	2,020
Solids, Total (%)			65.1			
Soil Moisture (%)		5.1	34.9	12.0		7.6

NOTES:

NA: Not Analyzed

(F): Criterion is based on adverse

impacts to plant life and

ISE Project #02061

Sample ID		SB-111	SB-111	SB-112	SB-114	SB-115	SB-116
Sample Location	Direct Contact Criteria & RBSLs	0-1'	4-5'	0-1.0'	0-0.75'	0-0.5'	0-0.75'
Date Collected		11/23/05	11/23/05	11/23/05	11/23/05	11/23/05	11/23/05
Date Extracted		NA	NA	NA	NA	NA	NA
Date Analyzed		11/29/05	11/29/05	11/29/05	12/06/05	12/06/05	12/06/05
Collection Method		Grab	Grab	Grab	Grab	Grab	Grab
Analytical Method No.		EPA 9251	EPA 9251	EPA 9251	EPA 9251	EPA 9251	EPA 9251
Chloride (mg/kg, PPM)	500 (F)	314	19	214	168	3,240	557
Solids, Total (%)					80.8	90.3	93.2
Soil Moisture (%)		4.1	10.5	7.5	19.2	9.7	6.8

NOTES:

NA: Not Analyzed

(F): Criterion is based on adverse

impacts to plant life and

ISE Project #02061

Sample ID		SB-117	SB-118	SB-118	SB-119	SB-122	SB-123
Sample Location	Direct Contact Criteria & RBSLs	0-0.75¹	0-0.75'	1.5-2'	0-0.75'	0-1'	0-1'
Date Collected		11/23/05	11/23/05	12/02/05	12/02/05	12/02/05	12/02/05
Date Extracted		NA	NA	NA	NA	NA	NA
Date Analyzed		12/06/05	12/06/05	12/06/05	12/06/05	12/06/05	12/06/05
Collection Method		Grab	Grab	Grab	Grab	Grab	Grab
Analytical Method No.		EPA 9251	EPA 9251	EPA 9251	EPA 9251	EPA 9251	EPA 9251
Chloride (mg/kg, PPM)	500 (F)	1,450	743	1,600	22	937	1,130
Solids, Total (%)		91.1	90.5	86.9	90.6	72.9	39.5
Soil Moisture (%)		8.9	9.5	13.1	9.4	27.1	60.5

NOTES:

NA: Not Analyzed

(F): Criterion is based on adverse

impacts to plant life and

ISE Project #02061

Sample ID		SB-124	SB-125	SB-126	SB-127	SB-128	SB-129
Sample Location	Direct Contact Criteria & RBSLs	0-1'	0-1'	0-1'	0.5'	0.5'	0.5'
Date Collected		12/05/05	12/05/05	12/05/05	12/05/05	12/05/05	12/05/05
Date Extracted		NA	NA	NA	NA	NA	NA
Date Analyzed		12/07/05	12/07/05	12/07/05	12/07/05	12/07/05	12/07/05
Collection Method		Grab	Grab	Grab	Grab	Grab	Grab
Analytical Method No.		EPA 9251	EPA 9251	EPA 9251	EPA 9251	EPA 9251	EPA 9251
Chloride (mg/kg, PPM)	500 (F)	336	1,250	46	115	40	107
Solids, Total (%)		70.0	64.7	58.8	77.1	87.6	85.1
Soil Moisture (%)		30.0	35.3	41.2	22.9	12.4	14.9

NOTES:

NA: Not Analyzed

(F): Criterion is based on adverse

impacts to plant life and

Table 2
Soil Analytical Results
Pond Release Investigation
Cherry Blossom LLC

ISE Project #02061

Sample ID		SB-130	TMW-1	TMW-2
Sample Location	Direct Contact Criteria & RBSLs	3'	1.5'	2'
Date Collected		12/05/05	11/23/05	11/23/05
Date Extracted		NA	NA	NA
Date Analyzed		12/07/05	12/07/05	12/07/05
Collection Method		Grab	Grab	Grab
Analytical Method No.		EPA 9251	EPA 9251	EPA 9251
Chloride (mg/kg, PPM)	500 (F)	584	2,140	43
Solids, Total (%)		90.6	72.6	87.0
Soil Moisture (%)		9.4	27.4	13.0

NOTES:

NA: Not Analyzed

(F): Criterion is based on adverse

impacts to plant life and

Table 3 Vertical Pore Velocity Calculations Pooled Areas, November Release Cherry Blossom LLC ISE Project #02061

Area	Vertical Pore Velocity, Vpw, inches/Year	Percolation Rate (q) in/year(Kalkaska data,)	Percolation Rate	Saturated Hydraulic Conductivity,Ks (cm/sec, EPA document)	Volumetric water content in unsaturated zone, 0 (unitless)	under saturated conditions	1/(2b+3) value, b is soil specific exponential parameter, unitless (EPA Doc)
A, B, C	23.8	15.4	0.105	0.00072	0.648	0.435	0.080
D	19.9	15.4	0.105	0.00019	0.774	0.485	0.074

Equation 1: Percolation rate

q (depth per unit time) = $HL + P_r - ET - Q_r$

where HL = Hydraulic loading from manmade sources, (depth per unit time)

 P_r = Precipitation, (depth per unit time)

ET = Evapotranspiration, (depth per unit time)

 $Q_r = Runoff, (depth per unit time)$

Equation 2: Interstitial pore velocity:

 v_{pw} (depth per unit time) = q/Θ

where v_{pw} = Interstitial ground water (pore water) velocity, (lenth per unit time)

q = average percolation or recharge rates (see above)

 Θ = volumetric moisture content of the unsaturated zone, (decimal fraction representing volume of water per volume of soil)



OMI, Inc.
606 Franklin Street
Traverse City, MI 49686
Tel 231 922.4922
Fex 231 992.8170

September 14, 2005

Sy Paulik MDEQ Cadillac District Office 120 W. Chapin St. Cadillac MI 49601-2158

Dear Sy:

Enclosed please find the results for your water samples. Analyses were performed according to the "Standard Methods for Examination of Water and Wastewater," 18th Edition.

If you have any questions concerning this result, please feel free to contact our laboratory by phoning (231) 922-4922.

Sincerely

LAZ Hart Lab Analyst

Enclosure: Lab Report, Invoice

OPERATIONS MANAGEMENT INTERNATIONAL TRAVERSE CITY WASTEWATER TREATMENT PLANT

ANALYTICAL LABORATORY REPORT

CLIENT: MDEQ

REPORT DATE: 09/14/05

ADDRESS: Cadillac District Office

120 W. Chapin St.

Cadillac MI 49601-2158

PROJECT:

Sample ID	Sample Date	Analysis	Units	Result
None	7/28/05	Chloride	Mg/L	104
		BOD	Mg/L	*
Valve 01	8/10/05	Chloride	Mg/L	2,000
		BOD	Mg/L	17,967
		NH3	Mg/L	14.6
WRS 02	8/10/05	Chloride	Mg/L	874
WRS 03	8/10/05	Chloride	Mg/L	180
		BOD	Mg/L	703
		NH3	Mg/L	.171

*Results	Dilution 1%	Mg/L
	.5	385
	.3	396
	.1	1,090
	.03	3.800

Signature, Lab Analyst

1

INVOICE

MDEQ Cadillac District Office 120 W. Chapin St. Cadillac, MI 49601-2158

Date: September 14, 2005 Project No. TRAVE916001 Invoice No.

Attn: Sy Paulik

This invoice is for laboratory analysis performed.

Sample Identification: Valve 01, Valve 02

WRS 02, WRS 03

(4) Chloride analysis

@ \$15.00

\$60.00

(3) NH3 analysis

@ \$10.00

\$30.00

(2) BOD analysis

@\$20.00

\$40.00

TOTAL AMOUNT DUE

\$ 130.00

Due and Payable Upon Receipt

Please send your remittance to:

Operations Management International, Inc.

606 Franklin Street

Traverse City, MI 49686

(Indu/PCA = 37500/7900 Orig. Invoice to Nancy 9-16-05 - Jed



4125 Cedar Run Rd., Suite B Traverse City, MI 49684 Phone 231-946-6767 Fax 231-946-8741 www.sosanalytical.com

COMPANY:

OMI

TCWWTP

NAME:

PROJECT NO:

WSSN:

WELL PERMIT:

TAX ID:

LOCATION:

606 FRANKLIN

TRAVERSE CITY

ΜI

SOS PROJECT NO:

SAMPLED BY:

053372 - 1

LIZ HART/OMI

DATE RECEIVED: TIME RECEIVED:

8/1/05 8:07 AM

SAMPLE ID:

DEO

DATE SAMPLED:

7/28/05

TIME SAMPLED:

SAMPLE MATRIX:

GRAB/WATER

COUNTY: TWP:

INORGANICS

<u>Analysis</u> **CHLORIDE EPA 325.2**

Concentration LOD 3

<u>Units</u> mg/L (PPM) <u>Analyst</u>

Date **Drinking Water** Completed Reg Limit(MCL)

104

KMC

8/2/05

ND = NOT DETECTED LOD = LIMIT OF DETECTION SMCL = FEDERAL NON-ENFORCEABLE LIMIT MCL = MAXIMUM CONTAMINANT LEVEL s.u. = STANDARD pH UNITS REPORTED AT 25 C DISS = DISSOLVED

Page 1 of 1

APPROVED BY:

SHANNA SHEA LAB MANAGER



CUST DY TRANSFER RECORD

Note: This is a four part form, please print using pen, pressing firmly - no dittos. Thank you.

4125 Cedar Run Rd, Suite B Traverse City, MI 49684

(231) 946-6767 · FAX (231) 946-8741

WSSN/Project No.	····		Site Addr	ess				Owne	r/Compar	y Name
TOWWTP			dor	dorfale 8	7+			5	10	17I
SAMPLER				7 2 3			ANALY	SIS INFO	RMATION	
Name of Sampler	Company				7	I				
12 Start	007	I				ĺ	l			
			No.	of Container	 rs					
-Sample Point (Identification)	Sample Date	Sample Type	Sample Size	Rush Sample	-				Other Requir	Analysis red?
OFO	72805	Grals	125m1			X				
					'					
							1	1 1	-	
					-					
·			-		-		+			
			 		 		_		-	
·					-		_	+ +		
					 			-		
·		<u> </u>			<u> </u>			-		
			ļ		ļ					
					<u> </u>					
										··
IISC. INFORMATION										
OUOTE #		***		EMPERATUR						
INVOICE TO:			RES	ULTS TO: (I	nclud	e Foox# (and Ph	one#)		
ONT				OM	1			٠		
•	·	E	-mail:							
If any samples are rush please	indicate above. l	RUSH DUE	DATE:					•	.· <u>.</u>	
ELIVERED BY:	1 2 :	T ===	· · · · · · · · · · · · · · · · · · ·					т —		
Relinquished by	8-1.05	Time 8.0		eceived By				Date		Time
				···						
			P	egetver in h	ap ()	A	_	Dote	1-05	8:07



4125 Cedar Run Rd., Suite B Traverse City, MI 49684 Phone 231-946-6767 Fax 231-946-8741 www.sosanalytical.com

COMPANY:

OMI

TCWWTP

SOS PROJECTINO:

053372 - 1

NAME:

PROJECT NO:

SAMPLED BY:

LIZ HART/OMI

WSSN:

DATE RECEIVED:

8/1/05

WELL PERMIT:

TIME RECEIVED: SAMPLE ID:

8:07 AM DEQ

TAX ID: LOCATION:

606 FRANKLIN

DATE SAMPLED:

7/28/05

TRAVERSE CITY MI

TIME SAMPLED: SAMPLE MATRIX:

GRAB/WATER

Date

COUNTY:

TWP:

INORGANICS

<u>Analyaia</u> CHLORIDE EPA 325.2 Concentration LOD

104

<u>Units</u> mg/L (PPM)

Drinking Water Analyst Completed Reg Limit(MCL)

KMC 8/2/05

ND = NOT DETECTED LOD = LIMIT OF DETECTION SMCL = FEDERAL NON-ENFORCEABLE LIMIT MCL = MAXIMUM CONTAMINANT LEVEL s.u. = STANDARD pH UNIT9 REPORTED AT 25 C DISS = DISSOLVED

Page 1 of 1

APPROVED BY:

SHANNA SHEA LAB MANAGER



CUSTODY TRANSFER RECORD

Note: This is a four part form, please print using pen, pressing firmly - no dittos. Thank you.

4125 Cedar Run Rd, Suite B Traverse City, MI 49684

(231) 946-6767 · FAX (231) 946-8741

WSSN/Project No.			Site Addre					Ow	mer/Co	mpany Name
TrwwTP		(doing	While 8	4		No. 18-41		1	CANT
SAMPLER							ANALYS	SIS INI	FORMA	TION
Name of Sampler	Company				7				-	
12 Hat	0)03	-					Г			
216 Had	002	1		of Container	_			Г		
Sample Point	Sample	Sample	Sample	Rush	rs	T^{T}	111	7	T	Other Anglysis
Sample Point (Identification)	Date	Sample Type	Size	Sample						Other Analysis Required?
DFO	72805	Crals	125m1			X				and the second
					'			and the second	- control	
Address with a state of the sta										
IISC. INFORMATION							2 (1)			Add Anna Anna Anna Anna Anna Anna Anna A
UOTE #			And the second s	MPERATUR		the state of the state of the state of	2 Carlotte at 1	12.2.3		
INVOICE TO:			RES	ULTS TO: (L	nclud	e Fax #	and Ph	one #)	
COST				OM	1					
			-mail:			la de la comp	-			
f any samples are rush pleas	se indicate above.	HUSH DUE	DATE:	* *				_•		
ELIVERED BY: Relinquished by	Date	Time	Re	eceived By			 	Date	е	Time
1 Stow	8.1.05	8:0	SA							
			Re	eceived in A	ab A	a		Dat	e -/	C Time

SOS ANALYTICAL

CUSTONY TRANSFER RECORD

pen, pressing firmly - no dittos. Thank you.

4125 Cedar Run Rd, Suite B Traverse City, MI 49684

(231) 946-6767 · FAX (231) 946-8741

WSSN/Project No.			Site Addre	ess					Owner/	Company Name
Towns	* 3 • Bid. Ph	(aclor	nant	3/1	3	+		ToC.	10m
							ANA	LYSIS	INFOR	MATION
AMPLER Name of Sampler	Company	}			7					
	O_{I}	(m)				1				_
\supset_{Y}	1)FC	ナ	Tophan Age As	,	_					
				of Container	rs			1	لــلــــــــــــــــــــــــــــــــــ	Transfer of the second
Sample Point Identification)	Sample Date	Sample Type	Sample Size	Rush Sample						Other Analysis Required?
WAS-03	8:10.05	600	Scomi		1	X				
WAS-OZ					1	X				The second secon
NRS-03	V	V	1		1	X			our contain year or expenses	
								, 2 ° 8	and the second	
			*			-				
in mening penenggata pangganan mening mening kelanggan penenggan penenggan penenggan penenggan penenggan penen										
								1		
		Carrier Section						1		
Autorian and Autorian and Autorian and Autorian and Autorian and Autorian and Autorian and Autorian and Autori					-			+		
					-			+		-
				-	-			+	_	
ISC. INFORMATION					<u></u>					1
UOTE #			т	MPERATUR	RE RE	CEIVE	D		in a second	
INVOICE TO:				ULTS TO: (I	A STATE OF THE PARTY OF	and the same is the	575 3420 1250	Phon	ne #)	The state of the s
ONE			C	one		•				
			-mail:	at a transfer of the second second second second second second second second second second second second second				-		
if any samples are rush please	indicate above.	RUSH DUE	DATE:				-112		_•	
ELIVERED BY:	Date	Time	15	i n		نبيجين		- 1	Date	1 m
Relinquished by	2-15-05			eceived By	and the second second second second second second second second second second second second second second seco				Date	Time
- Andrews				×				_		
			B	eceived in L				_	Date	105 Time
			//	V. xh	pics	200			Bate 15	102 110:5



4125 Cadar Run Rd., Suite B Traverse City, Mi 49684 Phone 231-946-6767 Fax 231-946-8741 www.sosanalytical.com

COMPANY:

OMI

TCWWTP

SOS PROJECT NO:

053657

NAME:

١.

SAMPLED BY:

SY/DEQ

PROJECT NO:

WSSN:

DATE SAMPLED:

WELL PERMIT:

WELL PERMIT

TIME SAMPLED:

8/10/2005

TAX ID: LOCATION:

606 FRANKLIN

SAMPLE MATRIX

GRAB/WATER

TRAVERSE CITY

DATE RECEIVED:

8/15/2005 10:28 AM

М

COUNTY:

INORGANICS

No: Analysis	Concentration	LOD	<u>Linita</u>	Analyst	<u>Data</u> <u>Completed</u>	Drinking Water Reg Limit(MC)
SAMPLE ID: VALVE-01						
1 CHLORIDE EPA 325.2	2,000	15	mg/L (PPM)	KMC	8/16/2005	
SAMPLE ID: WRS-02		_				
2 CHLORIDE EPA 325.2	874	3	mg/L (PPM)	KMC	8/16/2005	
SAMPLE ID: WRS-03		_				
3 CHLORIDE EPA 325.2	180	3	mg/L (PPM)	KMC	8/16/2005	

ND = NOT DETECTED

LOD = LIMIT OF DETECTION

SMCL = FEDERAL NON-ENFORCEABLE LIMIT

MCL = MAXIMUM CONTAMINANT LEVEL

6.U. = STANDARD pH UNITS REPORTED AT 25 C

DISS = DISSOLVED

APPROVED BY:

SHANNA SHEA LAB MANAGER

Page 1 of 1



4125 Cedar Run Rd., Suite B Traverse City, MI 49684 Phone 231-946-6767 Fax 231-946-8741 www.sosanalytical.com

COMPANY:

OMI

TCWWTP

NAME:

PROJECT NO:

WSSN:

WELL PERMIT:

TAX ID:

LOCATION:

606 FRANKLIN

TRAVERSE CITY

MI

SOS PROJECT NO:

SAMPLED BY:

053657 SY/DEQ

ATE SAMPLED:

8/10/2005

ME SAMPLED: SÄMPLE MATRIX:

GRAB/WATER

DATE RECEIVED:

8/15/2005

TIME RECEIVED:

10:28 AM

COUNTY: TWP:

INORGANICS

No:	Analysis	Concentration	LOD	<u>Units</u>	Analyst	<u>Date</u> Completed	Drinking Water Reg Limit(MCL)
SAM	PLE ID: VALVE-01						
1 0	CHLORIDE EPA 325.2	2,000	15	mg/L (PPM)	KMC	8/16/2005	
SAM	PLE ID: WRS-02					-	
2 C	CHLORIDE EPA 325.2	874	3	mg/L (PPM)	KMC	8/16/2005	
SAM	PLE ID: WRS-03	, <u>, , , , , , , , , , , , , , , , , , </u>					
3 C	CHLORIDE EPA 325.2	180	3	mg/L (PPM)	KMC	8/16/2005	

ND = NOT DETECTED LOD = LIMIT OF DETECTION SMCL = FEDERAL NON-ENFORCEABLE LIMIT MCL = MAXIMUM CONTAMINANT LEVEL s.u. = STANDARD pH UNITS REPORTED AT 25 C DISS = DISSOLVED

LAB MANAGER

Page 1 of 1

So	C	CUST DY TRANSFER RECOR te: This is a four part form, please print us pen, pressing firmly - no dittos. Thank y 4125 Cedar Run Rd, Suite											
			(일 년))) U6 1 7 2			((231)	946-	Trav	edar Run (erse City, AX (231)	MI 490		
WSSN/Project No.			00 1 7 2	Site Addre	ss	_			Owi	ner/Compar	y Name		
Vewall		יבונונו	ع التاح	DEVOI-	rant	2/10	25	<u>+</u>	<u></u>	C. 1C	m		
SAMPLER						_	_	ANA	LYSIS INF	ORMATION	<u>'</u>		
Name of Sampler	(Company			-					·			
$\supset_{\mathcal{Y}}$		DEC	<u> </u>			e 2		ŀ					
Sample Point		Sample	Sample	Sample	of Container Rush	18	 _		1 1	Other	Analysis		
(Identification)		Date	Туре	Size	Sample	<u> </u>	ļ			Requi	Analysis red?		
Value -01		8-10-05	600	Soom			X						
WRS-02							1						
WRS-03		11/	11/			1	V						
NW2-03	<u> </u>	 				1	1	\vdash					
·	 _		ļ			 	<u> </u>		_				
										. /			
<u> </u>		 	<u> </u>			 					<u>:</u> _		
1						-			-				
											· · · · · · · · · · · · · · · · · · ·		
	``						·						
· · · · · · · · · · · · · · · · · · ·	<u>:</u>	 			· · · · ·						•		
						ļ			$\dashv \dashv$		· 		
LICA WINDOWS													
MISC. INFORMATION				سجو		معدد الله		T					
INVOICE TO:	QUOTE #TEMPERATURE RECEIVED												
ONT													
i				mail:						•			
If any samples are rush pi	ease indi	cate above.	RUSH DUE	DATE:									
DELIVERED BY: Relinquished by		Octe	Time	Re	eceived By		·		Date		Time		
Joseph K Brown	- 8	-15-05	10:2	E		:			111	<i></i>			
						T	UI.	itte	(b) 7 17	JC/C			
}			-								1		
		<u> </u>		Pá	reived in L	ab	-		Date		Time		
I	1		ı	l */9	V.Scho				1 200	B115/05			



MICHIGAN DEPT. OF ENVIRONMENTAL QUALITY ENVIRONMENTAL LABORATORY ANALYSIS REQUEST SHEET

WRS. Whit

ANALYSIS REQUEST SHEET 50600065 MATRIX=WATER CIRCLE ONE: 3. NPDES SITE CODE NUMBER LB040160 Williamsburg Receiving & Storage E-MAIL ADDRESS PHONE MDEO PROJECT MANAGER ACCEPT HT CODES? DIVISION DISTRICT/OFFICE YES , NO Sv Paulik ്രാധിർട തന്നിchigan.gov 231-775-3960 x 6267 WH: Cadillac District Office If yes, which parameters? PCA: 79001 CONTRACT FIRM NAME (if applicable) PHONE INDEX: 37500 PRIMARY CONTACT PERSON Janice Heuer heueri@michigan.gov 231-775-3960 x 6203 PROJECT: PH: E-MAIL ADDRESSES TO SEND ADDITIONAL REPORTS TO: OVERFLOW LAB (Required for Funded RRD & CMI samples) IST 2ND CHOICE: 1.) CHOICS FINAL REPORT 2.) HAS BEEN SENT **** SAFETY INFORMATION REQUIRED **** VIA E-MAIL SEE BACK OF FORM SAMPLE COLLECTED SAMPLE DESCRIPTION LAB USE ONLY COMMENTS DATE TIME MILITARY MM/DD/YY GN/GA/MN 6/6/2005 1400 storm water pond directly by outlet 6/6/2005 1401 storm water pond 1 8 10 ORGANIC GENERAL CHEMISTRY INORGANIC 1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10 GN 8 1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10 Residue SS 1 2 3 4 5 6 7 8 9 10 Residue TDS 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10 BOD Tot 5 day 12345678910 BOD Carb 5 day 12345678910 Turbidity 1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10 12345678910 GA 1 2 3 4 5 6 7 8 9 10 1 2 1 2 1 2 1 2 3 4 5 6 7 8 9 10 TOC 12345678910 1 2 3 4 5 6 7 8 9 10 NO3 + NO2, NH3 12345678910 , Tot P 1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10 2345678910 1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10 1 2 I 2 1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10 RELEASED BY / ORGANIZATION RECEIVED BY / ORGANIZATION DATE TIME Print Name & Print Name & Organization Organization 225 Signature Signature Chain-of-Custody Print Name & Print Name & Organization Organization Signature Signature Print Name & Print Name & Organization Organization Signature Signature ZUU5 See Safety Section "Back of Form, " page 2 Revised November 24,2004

DE

MICHIGAN DEPT. OF ENVIRONMENTAL Q ITY ENVIRONMENTAL LABORATORY

WK

White

LAB WORK ORDER # ANALYSIS REQUEST SHEET 5070003 MATRIX=WATER CIRCLE ONE: SITE CODE NUMBER SITE NAME 3. NPDES LB040160 Williamsburg Receiving & Storage PHONE ACCEPT HT CODES? YES / NO DIVISION DISTRICT/OFFICE MDEO PROJECT MANAGER E-MAIL ADDRESS WB Cadillac District Office Sy Paulik Pauliks@michigan.gov 231-775-3960 x 6267 If yes, which parameters? PHONE PRIMARY CONTACT PERSON CONTRACT FIRM NAME (if applicable) AY: INDEX: 37500 PCA: 79001 Janice Heuer heueri@michigan.gov 231-775-3960 x 6203 PROJECT: PH: E-MAIL ADDRESSES TO SEND ADDITIONAL REPORTS TO: OVERFLOW LAB (Required for Funded RRD & CMI samples) 2ND CHOICE: IST CHOICE 2.) **** SAFETY INFORMATION REQUIRED **** SEE BACK OF FORM SAMPLE COLLECTED LAB USE ONLY SAMPLE DESCRIPTION COMMENTS DATE TIME MM/DD/YY MILITARY discharge in Paradi field 7/5/2005 TDS & CL 2100 **ORGANIC GENERAL CHEMISTRY** INORGANIC GN Residue TDS MN CL RELEASED BY / ORGANIZATION RECEIVED BY / ORGANIZATION م روق Print Name & Organization Chain-of-Custody Print Name & Print Name & Organization Organization Signature Signature Print Name & Print Name & Organization Organization Signature Signature



MCHIGAN

JUN 12 1996

June 10, 1996

David Porter Michigan Dept. of Env. Quality 120 W. Chapin Cadillac, MI 49601

Dear Mr. Porter,

Enclosed is the laboratory report for the cherry processing water sample. I saved the sample, and you may pick it up at your convenience. If you have any questions, please call me at 775-2368.

Sincerely,

Márgaret Ruth

Environmental Chemist Cadillac Utilities Dept.



CITY OF CADILLAC LABORATORY SERVICES DIVISION

Client:

Report Date:

06-10-96

Michigan Dept. of Env. Quality 120 W. Chapin St.

Sample Rec'd:

05-31-96

Cadillac, MI 49601

Sample Taken:

05-30-96

ATTN: David Porter

Parameter

Concentration

Units

Williamsburg Rec'd & Storage Cherry Processing Water

Specific Conductance Biological Oxygen Demand

860 230

uS mg/L

Any questions should be directed to Margaret Ruth.

Approved: Mallo

		CITY	OF CADI	LLAC	CHAI	EN O	F CU	STODY				- ,	
			71N ST.	:-39 <i>6</i>	50 E	- Στ 6	5261	/					
Project: Turn around ti	ANALYSIS REQUEST												
Sampler's Name Sampler's Sign	> 0 0 8	M E T	BACT	우 4	a	2 u f 0		ents/ ructi		X 3 E D			
Sample ID	Date	Time	Matrix		Ls	I S	AER	e .	e r				e t
WILLIAMS BURG REC'S & STURAGE	5/3/96	4:45 4:45	Cherry Procession	۹			1	344	9		·		
AV-2-2			Water									·····	
				·									
							<u> </u>	<u> </u>	1				
Special Instructions/Comments: (List each metal, each type of bacti, each type of voc scan)					nt <i><u>Dau</u> pany</i>	VEG	forth Si Pourzh Fr Co			gn // Cot Cot Cot me 920 Date 93196			
BOD Spec Cor	Relinquished by: Sign												
	Sample Receipt												
	Total number of containers												
	Rec'd good condition/cold												

Date___/___

Page ___ of ___

198 4211-4<u>11008</u> 4252

252 monthly and Mrs. BOD

.

DISCHARGE MONITORING REPORT (DMR) ocation if different) OMB No. 2040-0004 (2-16)Approval expires 6-30-91 PERMIT NUMBÉR DISCHARGE NUMBER RECEIVED-SWQD MONITORING PERIOD YEAR DAY YEAR MO DAY AUG 1 5 1990 FROM 2 NOTE: Read instructions before completing this form. (22-23) (24-25) (20-21) (26-27) (28-29)(30-31) (3 Card Only) QUANTITY OR LOADING NO. FREDUENDY EN TIPLE (4 Card Only) QUALITY OR CONCENTRATION (46-53) (54-61) (38-45)PARAMETER (46-53) (54-61) TYPE (32-37)ANALYSIS AVERAGE MAXIMUM UNITS MINIMUM AVERAGE MAXIMUM UNITS (69-70)162-63 (64-68) SAMPLE (continued) Arteria : ******* MEASUREMENT Grap -=) . . . PERMET.) 5 **** 0 HHAB BEQUIREMENT SAMPLE Arte warte de tie MEASUREMENT 7.2 0 Grap 6 ***** BEOUINEMENT 9.0 HERLYGRAB Di: SAMPLEif the second of 12:12:12:12: ****** MEASUREMENT JEAD 1143 PERMIT 8 2I **** 3. SAMPLE TIUGHES **** **** ******* MEASUREMENT . 4Ci Cail' rab . REPORT PERMIT D=#### ***** REPORT AHAT CORDR REQUIREMENT * 3 SAMPLE ** **** 1484411 *** *** ********** MEASUREMENT Visual 5******* PERMIT. **新华**森林 REPORT All British REPORT -VISUAL REQUIREMENT : --- 27 SAMPLE der der de rie de 10 de 10 e 10 th toma **** MEASUREMENT 301 - PERMIT 5200 **** REQUIREMENT ~ SAMPLE ***** to the same of the 20% (20% : 10%) 1 12:27:21:22 I IAL O. () is MEASUREMENT PERMOP **** CALCID REQUIREMENT I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION. I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE I AM AWARE THAT THERE ARE ARE SIFFICIALLY PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND LE PRINCIPAL EXECUTIVE OFFICER TELEPHONE DATE . Jensan 50 - ations, icaican 010-873-5620 : 11 SIGNATURE OF PRINCIPAL EXECUTIVE 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.) AREA OFFICER OR AUTHORIZED AGENT TYPED OR PRINTED DAY NUMBER YEAR MO AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

Form Approved.

		ME/ADDRESS (Included in different)		ianti		MONITORING RI						
		Minmsburg	11/4	יין יין יין	MONI	TORING PERIOD		للن ك	0	NAME/TITLE PRINC	CIPAL EXECUTIVE OFFICER	
					YEAR MO DA		MO DAY	SIGNATURE OF PRINCIP	AL EXECUTIVE	T- 6	7 110	
				FR	014		3/	OFFICER OR AUTHOR	RIZED AGENT	TYPED	C. Jensen U.F	
	TION				70 10 71 3							
	PAR #											
	PAR # PARA-MATER LIMIT UNITS	BCD-5	ρΗ	Susp. Solus	flow	OUT full						
	LIMIT		6.6-4.0									
DAY	UNITS	1914/2		mg/s	nai / ally							
1 02			-	·		· ·	-		-			
03						X						
04												
05											VOD	
06									HEC	IVED-SY	YQD	
07												
08									Al	JG 1 5 199	30	
09												
10									99	MP: & E	ŲF.	
12			-				-		- 0			
13					1		-		_			
14			 	-	/		-					
15					-							
16												
17					216,556	24/15						
18		110	6.79	28	216 000							
19		-			432 CCC							
_					275,000							
21		120	7.19	8	432 000	,						
22					432,000							
23					285,000							
24		90	7.20	10	432 000	,						
25					432,000	**						
26					432.000	61001	+					
27	-				432,000 132,000		-		_			
29		120	6.93	22	216,000							
30	20	7.00		7.5								
31					_							
	TOTAL	440	28.11	48	4,662,000							
	AVERAGE	/10	7.03	17	155 400							

231.773.5998 800.733.5998 231.773.6537 Trace Analytical Laborato: nc. 2241 Black Creek Road Muskegon, MI 49444-2673 'traceanalytical@mad.scientist.com GIT CO



Assurance Accuracy Accountability

July 22, 2002

RECEIVED

JUL 2 3 2002

WMD-CADILLAC

Ms. Janice Heuer MDEQ 120 W. Chapin St. Cadillac, MI 49601

RE: TRACE ID CG093

MDEQ-ERD Project: #470791/Williamsburg Receiving

Full QA+ chair ?. Cnot dy ir WMD file

Dear Ms. Heuer::

Enclosed are the analytical results which represent the completed report for the above referenced project. All analyses were completed at Trace Analytical Laboratories, Inc.

The samples were received on July 10, 2002, in good condition, correctly labeled and properly preserved. Any problems encountered during sample receipt are addressed in the enclosed Sample Log-In Checklist.

Every practical effort was made to meet the quality control requirements of each analytical method, and the reporting limit specifications of the project.

The analytical data associated with this project have been reviewed for accuracy, precision, and completeness. Methods used for analyses are indicated on analytical reports. Any problems encountered during the handling and/or analyses of the samples have been addressed in the Statement of Data Qualifications Section. If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

Ray V. Buhl

Laboratory Manager

Enclosures

231.773.5998 800.733.5998 231.773.6537

Trace Analytical Laborator 1C. 2241 Black Creek Road
Muskegon, MI 49444-2673
*traceanal#tical@mad.scientist.com



Ms. Janice Heuer

MDEQ

Project: #470791/Williamsburg Receiving

Trace ID: CG093-01

Sample ID: UPPER

% Solids:

NA

Matrix: Water

Sample Date: 07/08/02

Sample Received: 07/10/02

PARAMETER	REPORTING RESULTS LIMITS UNITS			PREP DLM DATE ANALYZED			METHOD	BATCH ID	
Biochemical Oxygen Demand	3100000	1000000	ug/L	500	07/10/02	07/15/02	EPA 405.1	BOD071001W	
Chloride	630000	25000	ug/L	100		07/10/02	EPA 300.0	IC071001W	
Sulfate	890000	35000	ug/L	100		07/10/02	EPA 300.0	IC071001W	
Total Inorganic Nitrogen	13000 *	60	ug/L	3.0		07/19/02	EPA 353.2/350.1	TIN071901W	
Total Phosphorus	4800	500	ug/L	25		07/17/02	EPA 365.2	PHS071701W	
Total Sodium	270000	1000	ug/L	1.0	07/11/02	07/12/02	EPA 6010	MIC071103W	

231.773.5998 800.733.5998 231.773.6537 Trace Analytical Laborato: nc. 2241 Black Creek Road • Muskegon, MI 49444-2673

traceanalytical@mad.scientist.com



Ms. Janice Heuer

MDEQ

Project: #470791/Williamsburg Receiving

Trace ID: CG093-02 Sample ID: LOWER

% Solids: NA

Matrix: Water

Sample Date: 07/08/02 Sample Received: 07/10/02

PARAMETER	REPORTING RESULTS LIMITS UNITS			PREP DLM DATE ANALYZED			METHOD	BATCH ID
Biochemical Oxygen Demand	3300000	1000000	ug/L	500	07/10/02	07/15/02	EPA 405.1	BOD071001W
Chloride	590000	25000	ug/L	100		07/10/02	EPA 300.0	IC071001W
Sulfate	1200000	35000	ug/L	100		07/10/02	EPA 300.0	IC071001W
Total Inorganic Nitrogen	16000.	60	ug/L	3.0		07/19/02	EPA 353.2/350.1	TIN071901W
Total Phosphorus	5500	500	ug/L	25		07/17/02	EPA 365.2	PHS071701W
Total Sodium	270000	1000	ug/L	1.0	07/11/02	07/12/02	EPA 6010	MIC071103W

OMI, Inc.

606 Franklin Street

Traverse City, MI 49686

Tel 231 922.4922

Fax 231 992.8170



September 11, 2002

Sy Paulik MDEQ Cadillac District Office 120 W. Chapin St. Cadillac MI 49601-2158

Dear Sy:

Enclosed please find the results for your water samples. Analyses were performed according to the "Standard Methods for Examination of Water and Wastewater," 18th Edition.

If you have any questions concerning this result, please feel free to contact our laboratory by phoning (231) 922-4922.

Sincerely

Liz Hart√ 1 Lab Analyst

mf

Enclosure: Lab Report, Invoice

RECEIVED

SEP 1 3 2002

SURFACE WATER QUALITY DIVISION CADILLAC DISTRICT OFFICE

OPERATIONS MANAGEMENT INTERNATIONAL TRAVERSE CITY WASTEWATER TREATMENT PLANT

ANALYTICAL LABORATORY REPORT

CLIENT: MDEQ REPORT DATE: Sept. 11, 2002

ADDRESS: Cadillac District Office

120 W. Chapin St. Cadillac MI 49601-2158

PROJECT: Williamsburg Results

Sample ID	Sample Date	Analysis Date	Analysis	Units	Result
Williamsburg Rec.& Stor.	8/23/02	8/25/02	BOD	mg/L	<20
Williamsburg Rec.& Stor.	8/23/02	8/27/02	Chloride	mg/L	44
			<u>=</u>		
· ·- - · · · · · · · · · ·					
				<u> </u>	
		:			·
	! !				
. <u></u>					
		<u>.</u>			
				<u> </u>	
				1	

ignature, Lab Analyst

RECEIVED

1

SEP 1 3 2002

SURFACE WATER QUALITY DIVISION CADILLAC DISTRICT OFFICE



OMI, Inc. 606 Franklin Street Traverse City, MI 49686 Tel 231 922.4922 Fax 231 992.8170

INVOICE

MDEQ Cadillac District Office 120 W. Chapin St. Cadillac, MI 49601-2158 Date: Sept. 11, 2002 Project No. Williamsburg Invoice No. MD002-08

Attn: Sy Paulik

This invoice is for laboratory analysis performed.

Sample Identification: Williamsburg samples August 23, 2002.

BOD analysis @ \$20.00
 Chloride analysis @ \$15.00

\$20.00

\$15.00

SUBTOTAL

\$ 35.00

TOTAL AMOUNT DUE

<u>\$ 35.00</u>

Due and Payable Upon Receipt

Please send your remittance to:

Operations Management International, Inc. 606 Franklin Street
Traverse City, MI 49686

phone 2 toll-free 8 fax 2

231.773.5998 800.733.5998 231.773.6537 Trace Analytical Laboratorie. ..c. 2241 Black Creek Road Muskegon, MI 49444-2673 traceanalytical@mad.scientist.com



Assurance Accuracy Accountability

July 22, 2002

RECEIVED

JUL 2 3 2002

WMD-CADILLAC

Ms. Janice Heuer MDEQ 120 W. Chapin St. Cadillac, MI 49601

RE: TRACE ID CG093

MDEQ-ERD Project: #470791/ Williamsburg Receiving

Dear Ms. Heuer::

Enclosed are the analytical results which represent the completed report for the above referenced project. All analyses were completed at Trace Analytical Laboratories, Inc.

The samples were received on July 10, 2002, in good condition, correctly labeled and properly preserved. Any problems encountered during sample receipt are addressed in the enclosed Sample Log-In Checklist.

Every practical effort was made to meet the quality control requirements of each analytical method, and the reporting limit specifications of the project.

The analytical data associated with this project have been reviewed for accuracy, precision, and completeness. Methods used for analyses are indicated on analytical reports. Any problems encountered during the handling and/or analyses of the samples have been addressed in the Statement of Data Qualifications Section. If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

Ray V. Buhl

Laboratory Manager

Enclosures

phone 2 toll-free 8 fax 2

231.773.5998 800.733.5998 231.773.6537 Trace Analytical Laboratori c.
2241 Black Creek Road
Muskegon, MI 49444-2673
traceanalytical@mad.scientist.com



Assurance Accuracy Accountability

TRACE ID CG093

MDEQ-ERD Project: #470791/ Williamsburg Receiving

CROSS REFERENCE TABLE

MDEQ ID	TRACE ID
Upper	CG093-01
Lower	CG093-02

phone 231.7 toll-free 800. fax 231.7

231.773.5998 800.733.5998 231.773.6537 Trace Analytical Laboratori c.
2241 Black Creek Road
Muskegon, MI 49444-2673
traceanalytical@mad.scientist.com



Assurance Accuracy Accountability

TRACE ID CG093

MDEQ-ERD Project: #470791/ Williamsburg Receiving

ANALYTICAL RESULTS STATEMENT OF DATA QUALIFICATIONS

TRACE ID:	CG093-01	Sample ID:	Upper
Parameter:	Total Inorganic Nitrogen	Method:	EPA 353.2/350.1

Qualifier:

Explanation:

The matrix spike and matrix spike duplicate recoveries were out of control

low for the nitrate/nitrite portion of this analysis.

Qualification/Narrative:

The result and reporting limit for this analyte, in the non-spiked version of the sample, must be considered estimated.

231.773.5998 800.733.5998 231.773.6537 Trace Analytical Laboratori c.
2241 Black Creek Road
Muskegon, MI 49444-2673
traceanalytical@mad.scientist.com



Assurance Accuracy Accountability

TRACE ID CG093

MDEQ-ERD Project: #470791/ Williamsburg Receiving

QUALITY CONTROL RESULTS STATEMENT OF DATA QUALIFICATIONS

Quality control data which did not meet specifications, but had no impact on actual sample data, are narrated on the individual quality control reports.

The QA/QC results associated with the analysis of these samples have been reviewed by Mr. Ray V. Buhl. To the best knowledge of the signer, the QA/QC data are complete and accurate. The review was completed July 22, 2002.

TRACE ANALYTICAL LABORATORIES, Inc.

Ray V. Buhl

Laboratory Manager

Chain of Custody Form(s)
Sample Log-in Checklist(s)

Dea

24

MICHIGAN DEPT. OF ENVIRONMENTAL QUALITY ENVIRONMENTAL LABORATORY ANALYSIS DE QUEST SHEET

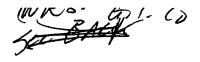
CG093

80

about 1'12 liter of each sample has no preservative. Her for see Sately Section Back of Form. page 2 Mirato, Mirit, Bad Chloride, Suffet his needed



MICHIGAN DEPT. OF ENVIRONMENTAL QU. **ENVIRONMENTAL LABORATORY** ANALYSIS REQUEST SHEET



LAB ORDER #				MATRIX=WATER
SUBMITTER DISTRICT DIVISION OR OFFICE	MDEQ PI MANAGI	ROJECT ER & PHONE		ACCEPT HT CODES?
MIND Caditle	Vanice	14.		
LOCATION SAMPLED / SITE ID NUMBER	11/1/12	176 UNDEX	PCA	PROJECT PH
Williamstrya Receiving		33820	47004	470791 (none)
COLLECTED BY	PHONE	ext 6203	ADDITIONAL REPOR	T
Clark H	021 17	5-3960	TO ATTENTION OF	
OVERFLOW CONTRACT LAB (Required for ERD)	ון י ונט	J760	AT (ADDRESS)	(If different than above office)
Truck			, ,	(,
**** SAFETY INFORMATI	ON REQUIRED	***		
SEE BACK O				
LAB USE SAMPLE IDENTIFICATION	SAMPL	E COLLECTED		COMMENTS
ONLY	DATE	TIME	<u>-</u>	COMMENTS
= upper	7/8/02	1200		
2 Jower	7/8/02	1:00	Two liters	mixed because
3			0) 00	mixed because
4 : : : : : : : : : : : : : : : : : : :				
5			<u> </u>	"
6				
7				·
8				
9"				1
10			<u> </u>	
ORGANIC	GENERAL CI			INORGANIC
VOA VOLATILES (624/8260) Full List 1 2 3 4 5 6 7 8 9 10	DO Diss Oxygen	1234567		al Metals 1 2 3 4 5 6 7 8 9 10 Field Filtered 1 2 3 4 5 6 7 8 9 10
BTEX/MTBE only 1 2 3 4 5 6 7 8 9 10	GN NO2, o-Phos Residue SS	12345671		-Lab Filtered 1 2 3 4 5 6 7 8 9 10
ON PESTICIDES/PCBS	Residue TDS		3 9 10 Quantificatio	n Limit High Low
(608/8081/8082) Pesticides & PCBs 1 2 3 4 5 6 7 8 9 10	BOD Tot 5 day	12345671		N METALS 1 2 3 4 5 6 7 8 9 10 L Cr, Cu, Pb, Hg, Se, Ag, Zn)
Pesticides only 1 2 3 4 5 6 7 8 9 10	BOD Carb 5 day	12345671	3 9 10 Fe Co Li	Mn 1 2 3 4 5 6 7 8 9 10
PCBs only 1 2 3 4 5 6 7 8 9 10		12345671	3 9 10 Al Be Mo B Sr	Ti V 1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Scan 3 (NPDES Only) 1 2 3 4 5 6 7 8 9 10	CA Chlorophyll	12345671		1 2 3 4 5 6 7 8 9 10
BNA BASE NEUTRAL & ACIDS			Sb - Antimo	•
(625/8270) BNAs 1 2 3 4 5 6 7 8 9 10	GA COD TOC	12345671		_
PNAs only 1 2 3 4 5 6 7 8 9 10	NO3 + NO2 NH3	2 3 4 5 6 7 1	9 10 Hardness	1 2 3 4 5 6 7 8 9 10
BNs only 1 2 3 4 5 6 7 8 9 10 ACIDs only 1 2 3 4 5 6 7 8 9 10	KJEL N. Tot P	1 2 3 4 5 6 7 1	3910 3910 MN _P H,C	onductance 1 2 3 4 5 6 7 8 9 10
SPECIAL REQUESTS				, Total Alk (1 2)3 4 5 6 7 8 9 10
Library Search (Qualitative)	GG Phenolics	1234567		
Volatiles 1 2 3 4 5 6 7 8 9 10 Semivolatiles 1 2 3 4 5 6 7 8 9 10	GP Phenolics (APDES)	12345671	3 9 10 Cr [⊷] 6	1 2 3 4 5 6 7 8 9 10
Other	GB Total CN	12345671		Grease 1 2 3 4 5 6 7 8 9 10
1 2 3 4 5 6 7 8 9 10	Amenable CN	1 2 3 4 5 6 7 8	9 10	
BOTTLE /				
TESTS RELEASED BY / AF	FILIATION	RECEIV	ED BY / AFFILIATION	DATE & TIME
TESTS RELEASED BY AF	MOED			
[2)		<u> </u>		

about 1'/2 liter of each sample has no preservative. Use the see Safety Section Back of Form, page 2 MN ato, MN it, BOD, Chlorine, Suffeth his rectail Revised January. 2000

SMINITEL LOU IN CHECKLIST

	C Name: ()	\cdot \mathbf{Q}	# (of Coolers:	
Date: 7-16-6 2 HPN#:	Project Name:		_	Cooler #s:	
Project #: CGO 93	Logged in by:	well		Cooler #s:	
	Cooler R	Peceint			
	Trace courier	7		. 00	
Cooler/samples delivered by:	Hand delivered	☐ Name of delivery per	son:	1/17	
•	Commercial courier	Name of courier ser			
Did cooler come with a bill of lading?	No S	}			
Did codici come war a biii or lading:	Yes Yes	☐ Way Bill or Trackir	na #:		
	No X	<u> </u>			
OC Seals present and intact on cooler?	Yes	니 T Custody seals signer	l bv		
·		Client COC num			
		Type of packing in co			
	Coolant and 1	Temperature			
Type of Coolant Use		Temperatu		n in Cooler)	
	Yes No	Date: 1-/0/0	ZTime:	10.40	
Slurry w/ crushed, cubed, or chip ice?		Temperature Bi	ank:	°C	i
Multiple bags of ice around samples?		Range of 3 samp	oles:	7 'c	
ice Packs/ Blue ice : [Melt Wa	ater:	<u> </u>	
No Coolant Present:		Ice still present upon rec	eipt: Yes	No	
	Gene	eral			
			•	Yes No	NA
co	C taped to inside of coole	er lid?	14460.0000000000000000000000000000000000		\square
	n with labels in good cond		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
	mple is in a sealed plastic	bag?		\mathbf{z}	
Each sa	mple is in a sealed plastic Labels filled out comple	bag? etely?		\mathbf{z}	
Each sai All bottle labels agree	mple is in a sealed plastic Labels filled out comple with Chain of Custody (C	bag? etely? OC)?			
Each sai All bottle labels agree Sufficient	mple is in a sealed plastic Labels filled out comple	bag? etely? OC)? ested?			
Each sai All bottle labels agree Sufficient pH check	mple is in a sealed plastic Labels filled out comple with Chain of Custody (C sample to run tests reque	bag? etely? OC)? ested?			
Each sai All bottle labels agree Sufficient pH check	mple is in a sealed plastic Labels filled out comple with Chain of Custody (C sample to run tests reque ted and samples at correc preservative added to sam	bag? etely? COC)? ested? et pH? uples?			
Each sai All bottle labels agree Sufficient pH check Correct p Soil volatiles received and approp	mple is in a sealed plastic Labels filled out comple with Chain of Custody (C sample to run tests reque ted and samples at correc preservative added to sam	bag? etely? COC)? ested? et pH? eples?			
Each said All bottle labels agree Sufficient pH check Correct p Soil volatiles received and appropriate COC filled ou	mple is in a sealed plastic Labels filled out comple with Chain of Custody (C sample to run tests reque ted and samples at correct preservative added to sam riate check in form comple Air bubbles absent from V t properly and signed by c	bag? etely? cOC)? ested? et pH? eples? eted? OAs?			
Each said All bottle labels agreed Sufficient pH check Correct p Soil volatiles received and appropriate of the content o	Tabels filled out completed with Chain of Custody (Cosample to run tests requested and samples at correct preservative added to sample to the complexity of the complexity of the complexity of the complete customatic check in form complete the complete customatic check in form complete check in form complete check in form complete check in form complete check in form complete check in form complete check in form check in fo	bag? etely? coc)? ested? et pH? uples? eted? OAs? client?			
Each said All bottle labels agreed Sufficient pH check Correct p Soil volatiles received and approp COC filled out COC signed in Was project manager	mple is in a sealed plastic Labels filled out comple with Chain of Custody (C sample to run tests reque ted and samples at correct preservative added to sam riate check in form comple Air bubbles absent from V t properly and signed by c	bag? etely? cOC)? ested? et pH? uples? eted? OAs? elient? dian? ssed?			
Each said All bottle labels agreed Sufficient pH check Correct p Soil volatiles received and appropriate of the company o	Tabels filled out completed with Chain of Custody (Cosample to run tests requested and samples at correct preservative added to sample to the complexity of the complexity of the complexity of the complete customatic check in form complete the complete customatic check in form complete check in form complete check in form complete check in form complete check in form complete check in form complete check in form check in fo	bag? etely? cOC)? ested? et pH? uples? eted? OAs? elient? dian? ssed?			
All bottle labels agree Sufficient pH check Correct p Soil volatiles received and approp COC filled ou COC signed ir Was project manager	Tabels filled out completed with Chain of Custody (Cosample to run tests requested and samples at correct preservative added to sample to the complexity of the complexity of the complexity of the complete customatic check in form complete the complete customatic check in form complete check in form complete check in form complete check in form complete check in form complete check in form complete check in form check in fo	bag? etely? coc)? ested? et pH? eples? eted? OAs? elient? dian? ssed?			
Each said All bottle labels agreed Sufficient pH check Correct p Soil volatiles received and approp COC filled out COC signed in Was project manager	Tabels filled out completed with Chain of Custody (Cosample to run tests requested and samples at correct preservative added to sample to the complexity of the complexity of the complexity of the complete customatic check in form complete the complete customatic check in form complete check in form complete check in form complete check in form complete check in form complete check in form complete check in form check in fo	bag? etely? coc)? ested? et pH? eples? eted? OAs? elient? dian? ssed?	Date:	Trace Analytical Laboratoria 2241 Black Creek Read Muskegon. MI 49444-2673	
All bottle labels agree Sufficient pH check Correct p Soil volatiles received and approp COC filled ou COC signed ir Was project manager	Tabels filled out completed with Chain of Custody (Cosample to run tests requested and samples at correct preservative added to sample to the complexity of the complexity of the complexity of the complete customatic check in form complete the complete customatic check in form complete check in form complete check in form complete check in form complete check in form complete check in form complete check in form check in fo	bag? etely? coc)? ested? et pH? eples? eted? OAs? elient? dian? ssed?	Date:	Trace Analytical Laboratoria 2241 Black Creek Read Muskegon. MI 49444-2673	
All bottle labels agree Sufficient pH check Correct p Soil volatiles received and approp COC filled ou COC signed ir Was project manager	Tabels filled out completed with Chain of Custody (Cosample to run tests requested and samples at correct preservative added to sample to the complexity of the complexity of the complexity of the complete customatic check in form complete the complete customatic check in form complete check in form complete check in form complete check in form complete check in form complete check in form complete check in form check in fo	bag? etely? coc)? ested? et pH? eples? eted? OAs? elient? dian? ssed?	Date:	Trace Analytical Laboratoria 2241 Black Creek Read Muskegon. MI 49444-2673	

Sample Results

231.773.5998 800.733.5998 231.773.6537 Trace Analytical Laborator 2241 Black Creek Road 1C. Muskegon, MI 49444-2673 traceanalytical@mad.scientist.com



Accuracy Accountability

Ms. Janice Heuer

MDEQ

Project: #470791/Williamsburg Receiving

Trace ID:

CG093-01

Sample ID: UPPER

% Solids:

NA

Matrix: Water

Sample Date: 07/08/02

Sample Received: 07/10/02

PARAMETER	RESULTS	REPORTING LIMITS	UNITS	DLM	PREP DATE A	NALYZED	METHOD	BATCH ID
Biochemical Oxygen Demand	3100000	1000000	ug/L	500	07/10/02	07/15/02	EPA 405.1	BOD071001W
Chloride	630000	25000	ug/L	100		07/10/02	EPA 300.0	IC071001W
Sulfate	890000	35000	ug/L	100		07/10/02	EPA 300.0	IC071001W
Total Inorganic Nitrogen	13000 *	60	ug/L	3.0		07/19/02	EPA 353.2/350.1	TIN071901W
Total Phosphorus	4800	500	ug/L	25		07/17/02	EPA 365.2	PHS071701W
Total Sodium	270000	1000	ug/L	1.0	07/11/02	07/12/02	EPA 6010	MIC071103W

231.773.5998 800.733.5998 231.773.6537 Trace Analytical Laborator 1c.
2241 Black Creek Road
Muskegon, MI 49444-2673
traceanalytical@mad.scientist.com



Ms. Janice Heuer

MDEQ

Project: #470791/Williamsburg Receiving

Trace ID: (

CG093-02

Sample ID: LOWER

% Solids:

NA

Matrix: Water

Sample Date: 07/08/02

Sample Received: 07/10/02

PARAMETER	RESULTS	REPORTING LIMITS	UNITS	DLM	PREP DATE A	NALYZED	METHOD	BATCH ID
Biochemical Oxygen Demand	3300000	1000000	ug/L	500	07/10/02	07/15/02	EPA 405.1	BOD071001W
Chloride	590000	25000	ug/L	100		07/10/02	EPA 300.0	IC071001W
Sulfate	1200000	35000	ug/L	100		07/10/02	EPA 300.0	IC071001W
Total Inorganic Nitrogen	16000	60	ug/L	3.0		07/19/02	EPA 353.2/350.1	TIN071901W
Total Phosphorus	5500	500	ug/L	25		07/17/02	EPA 365.2	PHS071701W
Total Sodium	270000	1000	ug/L	1.0	07/11/02	07/12/02	EPA 6010	MIC071103W

Quality Control Results

231.773.5998 800.733.5998 231.773.6537

Trace Analytical Laborator 2241 Black Creek Road Muskegon, MI 49444-2673 traceanalytical@mad.scientist.com



Ms. Janice Heuer

MDEQ

Project: #470791/Williamsburg Receiving

Trace ID:

CG093 WB071001

Sample ID: Method Blank

% Solids:

NA

Matrix: Water

Sample Date:

Sample Received:

•	REPORTING				PREP				
PARAMETER	RESULTS	LIMITS	UNITS	DLM	DATEA	NALYZED	METHOD	BATCH ID	
Biochemical Oxygen Demand	U	2000	ug/L	1.0	07/10/02	07/15/02	EPA 405.1	BOD071001W	
Chloride	U	10000	ug/L	1.0		07/10/02	EPA 300.0	IC071001W	
Sulfate	U	1000	ug/L	1.0		07/10/02	EPA 300.0	IC071001W	

Quality Control Report for Wet Chemistry

BOD

Trace LCS ID: WS/WSD071001 QC Batch ID: BOD071001W

Analysis Date: 07/10/02

MS/MSD ID: NA

Method:

405.1



ice Analytical Laborator 'n 11 Black Creek Road skegon, MI 49444-2673 ceanalytical@mad.scientist.co

orator 'nc. d -2673 .scientist.com

	Method Blank	LCS Spk.	LCSD Spk.	LCS	LCSD					
	Result	Added	Added	Result	Result	LCS	LCSD			
Parameter	(μ g/L)	(μ g/L)	(μ g/L)	(μ g/L)	(μ g/L)	% Recovery	% Recovery	RPD	% Recovery	RPD
BOD	U	198000	198000	215000	215000	109	109	0	85 - 115	31

Assurance
Accuracy
Accountability

Quality Control Report for Wet Chemistry

Chloride

Trace LCS ID: WS/WSD071001

QC Batch ID: IC071001W Analysis Date: 07/10/02

MS/MSD ID:

CG093-01 MS/MSD

Method:

300.0

	Method Blank	LCS Spk.	LCSD Spk.	LCS	LCSD					
	Result	Added	Added	Result	Result	LCS	LCSD			
Parameter	(μ g/L)	(μg/L)	(μ g/L)	(μ g/L)	(μ g/L)	% Recovery	% Recovery	RPD	% Recovery	RPD
Chloride	U	1000	1000	1011	967.6	101	97	4.0	90 - 110	20

		MS Spk.	MSD Spk.							
	Sample Conc.	Added	Added	MS Result	MSD Result					
Parameter	(μ g/L)	(μ g/L)	(μ g/L)	(μ g/L)	(μg/L)	MS % Rec.	MSD % Rec.	RPD	% Recovery	RPD
Chloride	629759	100000	100000	712389	674040	83	44 *	61 *	80 - 120	20

Chloride

^{*} The matrix spike duplicate recovery was out of control, resulting in an out of control RPD between the matrix spike and matrix spike duplicate. Because the background concentration of this analyte is greater than four times the spike amount, no data require qualification.

Assurance Accuracy Accountability

Sulfate

WS/WSD071001 Trace LCS ID:

QC Batch ID:

IC071001W

Analysis Date:

07/10/02

MS/MSD ID:

CG093-01 MS/MSD

Method:

300.0

	Method Blank	LCS Spk.	LCSD Spk.	LCS	LCSD				
	Result	Added	Added	Result	Result	LCS	LCSD		
Parameter	(μ g/L)	(μ g/L)	(μg/L)	(μ g/L)	(μ g/L)	% Recovery	% Recovery	RPD	% Recovery RPD
Sulfate	U	2500	2500	2564	2391	103	96	7.0	90 - 110 20

Quality Control Report for Wet Chemistry

	Sample Conc.	MS Spk. Added	MSD Spk. Added	MS Result	MSD Result				
Parameter	(μg/L)	(μ g/L)	(μ g/L)	(μ g/L)	(μ g/L)	MS % Rec.	MSD % Rec.	RPD	% Recovery RPD
Sulfate	892582	1000000	1000000	1888453	1955475	100	106	5.8	80 - 120 20

231.773.5998 800.733.5998 231.773.6537 Trace Analytical Laborator 2241 Black Creek Road
Muskegon, MI 49444-2673
traceanalytical@mad.scientist.com



Ms. Janice Heuer

MDEQ

Project: #470791/Williamsburg Receiving

Trace ID:

CG093 WB071701

Sample ID: Method Blank

% Solids:

NA

Matrix: Water

Sample Date:

Sample Received:

PARAMETER	RESULTS	REPORTING LIMITS	UNITS	DLM	PREP DATE ANALYZED	METHOD	BATCH ID
Total Phosphorus	U	20	ug/L	1.0	07/17/02	EPA 365.2	PHS071701W

Quality Control Report for Wet Chemistry

Phosphorus

Trace LCS ID: WS/WSD071701 QC Batch ID: PHS071701W

Analysis Date: 7/17/02

MS/MSD ID: CG162-02 MS/MSD

Method:

365.2

	Method Blank	LCS Spk.	LCSD Spk.	LCS	LCSD					
	Result	Added	Added	Result	Result	LCS	LCSD			1 1
Parameter	(μg/L)	(μg/L)	(μg/L)	(μg/L)	(μg/L)	% Recovery	% Recovery	RPD	% Recovery	RPD
Phosphorus	U	640	640	657	687.6	103	107	3.8	94 - 107	5.2

		MS Spk.	MSD Spk.						·	
	Sample Conc.	Added	Added	MS Result	MSD Result		·			
Parameter	(μg/L)	(μg/L)	(μg/L)	(μg/L)	(μ g/L)	MS % Rec.	MSD % Rec.	RPD	% Recovery	RPD
Phosphorus	173.9	640	640	820.1	820.1	101	101	0	75 - 134	12

231.773.5998 800.733.5998 231.773.6537 Trace Analytical Laborator 1c.
2241 Black Creek Road
Muskegon, MI*49444·2673
traceanalytical@mad.scientist.com



Ms. Janice Heuer

MDEQ

Project: #470791/Williamsburg Receiving

Trace ID: CG0

CG093 WB071103

Sample ID: Method Blank

% Solids:

NA

Matrix: Water

Sample Date:

Sample Received:

PARAMETER	RESULTS	REPORTING LIMITS	UNITS	DLM	PREP DATE ANALYZED	METHOD	BATCH ID
Total Sodium	U	1000	ug/L	1.0	07/11/02 07/12/02	EPA 6010	MIC071103W

Laboratory Control Spike Recovery and RPD Summary Report

Trace LCS ID:

WS/WSD071103

QC Batch ID:

MIC071103W

Digestion Date:

7/11/02

OC Limit

_									<u>Q</u>	C Limits	
	Anaban	Method Blank	Cole Addad	LCS Beaulte	I CSD Possillo	LCS VBoo	LCSD WB	BBD	200	0/ Doo	
1	Analyte	Result ug/l	Spk. Added ug/l	LCS Results ug/l	LCSD Results ug/l	LCS %Rec	LCSD %Rec	RPD	RPD	%Rec	Method
ı							=				
ᆲ	Sodium	U	8889	9116	8984	103	101	2.0	20	80 - 120	6010

ck Road
49444-2673
l@mad.scientist.com

Matrix Spike Recovery and RPD Summary Report

Trace ID:

CG093-01 MS/MSD

QC Batch ID:

MIC071103W

Digestion Date: Matrix:

7/11/02

Water

	QC Limits										
Analyte	Sample Conc.	MS Spk Added ug/l	MSD Spk Added ug/l	MS Results	MSD Results	MS %Rec	MSD %Rec	RPD	RPD	%Rec	Method
Sodium	265200	8889	8889	272600	294000	83	324 *	118 *	20	75 - 125	6010

Sodium

* The matrix spike duplicate recovery was out of control, resulting in an out of control RPD between the matrix spike and matrix spike duplicate. Because the background concentration of this analyte is greater than four times the spike amount, no data require qualification.

231.773.5998 800.733.5998 231.773.6537

Trace Analytical Laborator 1c.
2241 Black Creek Road
Muskegon, MI 49444-2673
traceanalytical@mad.scientist.com



Ms. Janice Heuer

MDEQ

Project: #470791/Williamsburg Receiving

Accountability

Trace ID: CG093 WB071901

Sample ID: Method Blank

% Solids: NA

10100

Matrix: Water

Sample Date:

Sample Received:

PARAMETER	RESULTS	REPORTING LIMITS	G UNITS	DLM	PREP DATE ANALYZED	METHOD	BATCH ID
Total Inorganic Nitrogen	U	40	ug/L	1.0	07/19/02	EPA 353.2/350.1	TIN071901W

Ammonia Nitrogen

WS/WSD071601 Trace LCS ID: AMM071601W QC Batch ID:

Analysis Date: 07/16/02

MS/MSD ID: CG128-01 MS/MSD

Method:

350.1



	Method Blank	LCS Spk.	LCSD Spk.	LCS	LCSD				
	Result	Added	Added	Result	Result	LCS	LCSD	}	
Parameter	(μ g/L)	(μ g/L)	(μ g/L)	(μ g/L)	(μ g/L)	% Recovery	% Recovery	RPD	% Recovery RPD
Ammonia	U	1000	1000	1055	1053	106	105	0.95	90 - 110 11

		MS Spk.	MSD Spk.							
	Sample Conc.	Added	Added	MS Result	MSD Result					
Parameter	(μ g/L)	(μ g/L)	(μ g/L)	(μg/L)	(μ g/L)	MS % Rec.	MSD % Rec.	RPD	% Recovery R	(PD
Ammonia	220.3	2000	2000	2116	2113	95	95	0	90 - 110	14

Quality Control Report for Wet Chemistry

Nitrate-Nitrite Nitrogen

Trace LCS ID: WS/WSD071201 QC Batch ID: ATE071201W

Analysis Date: 07/12/02

MS/MSD ID: CG093-01 MS/MSD

Method: 353.2

	Method Blank	LCS Spk.	LCSD Spk.	LCS	LCSD					27 12
	Result	Added	Added	Result	Result	LCS	LCSD	•		
Parameter	(μ g/L)	(μ g/L)	(μ g/L)	(μ g/L)	(μ g/L)	% Recovery	% Recovery	RPD	% Recovery	RPD
Nitrate-Nitrite	U	1000	1000	956.7	957.9	96	96	0	90 - 110	20

		MS Spk.	MSD Spk.							
	Sample Conc.	Added	Added	MS Result	MSD Result					
Parameter	(μ g/L)	(μ g/L)	(μ g/L)	(μ g/L)	(μg/L)	MS % Rec.	MSD % Rec.	RPD	% Recovery	RPD
Nitrate-Nitrite	U	1000	1000	594.9	592.6	59 *	59 *	0	90 - 110	20

Nitrate-Nitrite

The matrix spike and matrix spike duplicate recoveries were out of control low. The reporting limit for this analyte in the non-spiked version of the sample must be considered estimated.





September 6, 2002

Mr. Andrew Smits
Inland Seas Engineering, Inc.
P.O. Box 6820
Traverse City, MI 49696

Dear Mr. Smits:

SOS Analytical, Inc. has recently realized a technical error in the Total Phosphorus tests. The results are generated by an automated method that is calibrated using a standard phosphorus solution. Prior to April 4, 2002 the stock standard used to prepare a standard curve and calibrate the instrument was 1000 ppm as P. Since April 4, 2002, a standard phosphate (PO₄³⁻) solution has been used to calibrate the system. The system was calibrated using a phosphate standard and reported the same concentration as phosphorus (as P). This caused the Total Phosphorus values to be approximately 3.067 times higher than actual because the ratio of P to PO₄³⁻ is 0.3261.

M.W. P
$$30.974 \text{ g/mol}$$

---- = 32.6%
M.W. PO₄³⁻ 94.93 g/mol

All Total Phosphorus as PO₄³ values reported to Inland Seas Engineering since April 4, 2002 will be recalculated to represent Total Phosphorus as P, in mg/L. The following is a partial list of SOS Project Numbers (sample test identity) that have been recalculated and reprinted.

SOS Proje	ect Number		
020671-1	022212	022451-1	022537-1
021249-1	022369-1	022468	022579-1
021250-1	022399	022492-1	022657
021250-2	022413-1	022492-1	022761
021785-1	022432-1	022513-1	022777

We regret the oversight, and have corrected this error.

Sincerely,

Shanna Shea

Lab Manager, SOS Analytical, Inc.



4125 Cedar Run Road, Suite B Traverse City, MI 49684 voice: (231) 946-6767

fax: (231) 946-8741

SOSanalytical.com

COMPANY:

WILLIAMSBURG R & S

SOS PROJECT NO:

023825 - 1

NAME:

SAMPLED BY::

TIM GATES/ISE

PROJECT NO:

02399084-03E

DATE RECEIVED:

10/31/02

WSSN: WELL PERMIT:

TIME RECEIVED: SAMPLE ID:

11:05 AM MUNRO ROAD OUTFALL

TAX ID:

MUNRO RD.

DATE SAMPLED:

10/31/02

LOCATION:

TIME SAMPLED:

WILLIAMSBURG

SAMPLE MATRIX:

WATER

COUNTY: TWP:

INORGANICS/WET CHEMISTRY

Analysis BOD 5-DAY EPA 405.1	Concentration <200	LOD 200	<u>Units</u> mg/L (PPM)	Analyst KMC	Completed 11/6/02	Reg Limit(MCL)
CHLORIDE EPA 325.2	3 ·	1	mg/L (PPM)	KMC	11/5/02	
PHOSPHORUS-TOTAL EPA 365.4M	ND	0.25	mg/L (PPM)	KMC	10/31/02	
SODIUM - EPA 273.1	3.05	0.5	mg/L (PPM)	KJ	11/4/02	

ND = NOT DETECTED LOD = LIMIT OF DETECTION SMCL = FEDERAL NON-ENFORCEABLE LIMIT MCL = MAXIMUM CONTAMINANT LEVEL s.u. = STANDARD pH UNITS REPORTED AT 25 C DISS = DISSOLVED

APPROVED BY:

SHANNA SHEA LAB MANAGER

Page 1 of 1

Williamsburg Ru + Sto G.T. Co

ZCZC COOPSITES 000 TTAA00 KARB 251341

PLEASE NOTE - THE COOPERATIVE OBSERVATIONAL DATA LISTED BELOW IS VALID FOR THE 24 HOUR PERIOD ENDING AT 7AM EST ON THE DATE SHOWN. THIS IS PRELIMINARY DATA FROM OBSERVERS AND MAY BE ADJUSTED LATER. THIS DATA IS "PRELIMINARY DATA" ALL OFFICIAL DATA COMES FROM THE NATIONAL CLIMATIC DATA CENTER (NCDC) AVAILABLE AT THEIR WEB-SITE.

COOP SITE DATA AT ALPENA, MI (ALPM4) BACKUP (~=ASOS)
DT/MAX/MIN/PRECIP/MONTHLY/YEARLY/SNOWFALL/MONTHLY/SEASONAL/DEPTH

API	RIL	2005							
01	53	36	T	T	6.47	T	T	109.4	1
02	54	31	0.00	T	6.47	0.0	T	109.4	T
03	49	32	0.00	T	6.47	0.0	T	109.4	T
04	54	29	0.00	T	6.47	0.0	T	109.4	T
05	59	30	0.00	T	6.47	0.0	T	109.4	T
06	60	37	0.00	T	6.47	0.0	T	109.4	0
07	52	37	0.09	0.09	6.56	0.0	T	109.4	0
80	58	32	\mathbf{T}	0.09	6.56	0.0	T	109.4	0
09	56	26	0.00	0.09	6.56	0.0	${f T}$	109.4	0
10	62	27	0.00	0.09	6.56	0.0	T	109.4	0
11	60	32	0.00	0.09	6.56	0.0	T	109.4	0
12	47	34	0.00	0.09	6.56	0.0	T	109.4	0
13	49	26	0.00	0.09	6.56	0.0	T	109.4	0
14	57	31	0.00	0.09	6.56	0.0	T	109.4	0
15	52	26	0.00	0.09	6.56	0.0	T	109.4	0
16	57	30	0.00	0.09	6.56	0.0	T	109.4	0
17	72	34	0.00	0.09	6.56	0.0	T	109.4	0
18	68	33	0.00	0.09	6.56	0.0	T	109.4	0
19	70	35	0.00	0.09	6.56	0.0	T	109.4	0
20	84	43	0.59	0.68	7.15	T	T	109.4	0
21	47	30	0.11	0.79	7.26	0.0	T	109.4	0
22		28	0.00	0.79	7.26	0.0	${f T}$	109.4	0
23	55	29	T	0.79	7.26	T	T	109.4	0
	34	29	0.44	1.23	7.70	5.2	5.2	114.6	5
25	33	29	0.53	1.76	8.23	5.0	10.2	119.6	7

*TRACE SNOWFALL ON THE 20TH DUE TO HAIL OCCURRING AT THE STATION

COOP SITE DATA AT HOUGHTON LAKE, MI(SWLM4)BACKUP(*=HTLM4)(~=ASOS)DT/MAX/MIN/PRECIP/MONTHLY/YEARLY/SNOWFALL/MONTHLY/SEASONAL/DEPTH

APRIL	2005	;						
01 48	29	0.02	0.02	6.76	0.0	0.0	70.7	0
02 56	30	0.00	0.02	6.76	0.0	0.0	70.7	0
03 51	29	0.00	0.02	6.76	0.0	0.0	70.7	0
04 53	28	0.00	0.02	6.76	0.0	0.0	70.7	0
05 63	27	0.00	0.02	6.76	0.0	0.0	70.7	0
06 75	38	0.00	0.02	6.76	0.0	0.0	70.7	0
07 65	38	0.03	0.05	6.79	0.0	0.0	70.7	0
08 61	26	0.00	0.05	6.79	0.0	0.0	70.7	0
09 62	27	0.00	0.05	6.79	0.0	0.0	70.7	0
10 66	27	0.00	0.05	6.79	0.0	0.0	70.7	0
11 69	34	0.00	0.05	6.79	0.0	0.0	70.7	0
12 60	35	0.00	0.05	6.79	0.0	0.0	70.7	0
13 55	32	0.00	0.05	6.79	0.0	0.0	70.7	0

14	62	32	0.00	0.05	6.79	0.0	0.0	70.7	0
15	63	28	0.00	0.05	6.79	0.0	0.0	70.7	0
16	65	32	0.00	0.05	6.79	0.0	0.0	70.7	0
17	74	36	0.00	0.05	6.79	0.0	0.0	70.7	0
18	70	40	0.00	0.05	6.79	0.0	0.0	70.7	0
19	78	42	0.00	0.05	6.79	0.0	0.0	70.7	0
20	83	47	0.45	0.50	7.24	0.0	0.0	70.7	0
21	57	30	T	0.50	7.24	0.0	0.0	70.7	. 0
22	60	28	0.00	0.50	7.24	0.0	0.0	70.7	0
23	53	31	T	0.50	7.24	T	T	70.7	0
24	34	28	0.14	0.64	7.38	0.9	0.9	71.6	1
25	35	28	0.14	0.78	7.52	T	0.9	71.6	T

COOP SITE DATA AT SAULT STE MARIE, MI (SSMM4) BACKUP(~=ASOS)
DT/MAX/MIN/PRECIP/MONTHLY/YEARLY/SNOWFALL/MONTHLY/SEASONAL/DEPTH

API	RIL	2005							
01	44	33	0.32	0.32	3.54	T	T	82.0	7
02	53	28	0.00	0.32	3.54	0.0	${f T}$	82.0	5
03	47	22	0.00	0.32	3.54	0.0	${f T}$	82.0	3
04	47	24	0.00	0.32	3.54	0.0	T	82.0	T
05	52	28	T	0.32	3.54	0.0	T	82.0	T
06	57	38	0.03	0.35	3.57	0.0	${f T}$	82.0	T
07	50	35	0.60	0.95	4.17	0.0	${f T}$	82.0	${f T}$
08	52	26	0.00	0.95	4.17	0.0	${f T}$	82.0	Ť
09	56	27	0.00	0.95	4.17	0.0	T	82.0	T
10	64	30	0.00	0.95	4.17	0.0	T	82.0	0
11	62	34	0.00	0.95	4.17	0.0	${f T}$	82.0	0
12	54	33	0.00	0.95	4.17	0.0	T	82.0	0
13	56	23	0.00	0.95	4.17	0.0	T	82.0	0
14	57	24	0.00	0.95	4.17	0.0	T	82.0	0
15	61	28	0.00	0.95	4.17	0.0	T	82.0	0
16	62	31	0.00	0.95	4.17	0.0	T	82.0	0
17	67	36	0.03	0.98	4.20	0.0	T	82.0	0
18	67	30	0.00	0.98	4.20	0.0	${f T}$	82.0	0
19	74	36	0.00	0.98	4.20	0.0	T	82.0	0
20	80	44	0.25	1.23	4.45	0.0	T	82.0	0
21	54	26	0.00	1.23	4.45	0.0	T	82.0	0
22	58	28	0.00	1.23	4.45	0.0	T	82.0	0
23	58	26	0.03	1.26	4.48	0.4	0.4	82.4	T
24	43	27	0.02	1.28	4.50	0.2	0.6	82.6	0
25	41	32	0.22	1.50	4.72	T	0.6	82.6	0

COOP SITE DATA AT TRAVERSE CITY, MI(TCMM4)BACKUP(*=NWFM4)(~=ASOS) DT/MAX/MIN/PRECIP/MONTHLY/YEARLY/SNOWFALL/MONTHLY/SEASONAL/DEPTH

API	RIL	2005							
01	53	31	0.12	0.12	5.00	0.0	0.0	75.6	0
02	55	31	0.00	0.12	5.00	0.0	0.0	75.6	0
03	51	30	0.00	0.12	5.00	0.0	0.0	75.6	0
04	52	29	0.00	0.12	5.00	0.0	0.0	75.6	0
05	55	29	0.00	0.12	5.00	0.0	0.0	75.6	0
06	76	42	0.00	0.12	5.00	0.0	0.0	75.6	0
07	73	39	0.00	0.12	5.00	0.0	0.0	75.6	0
08	52	30	0.00	0.12	5.00	0.0	0.0	75.6	0
09	56	30	0.00	0.12	5.00	0.0	0.0	75.6	0
10	65	36	0.00	0.12	5.00	0.0	0.0	75.6	0
11	72	36	0.00	0.12	5.00	0.0	0.0	75.6	0
12	69	40	0.00	0.12	5.00	0.0	0.0	75.6	0
13	64	29	0.00	0.12	5.00	0.0	0.0	75.6	0

14	56	30	0.00	0.12	5.00	0.0	0.0	75.6	0
15	57	30	0.00	0.12	5.00	0.0	0.0	75.6	0
16	61	30	0.00	0.12	5.00	0.0	0.0	75.6	0
17	74	40	T	0.12	5.00	0.0	0.0	75.6	0
18	63	40	0.00	0.12	5.00	0.0	0.0	75.6	0
19	79	40	0.00	0.12	5.00	0.0	0.0	75.6	0
20	84	53	0.76	0.88	5.76	0.0	0.0	75.6	0
21	54	31	0.00	0.88	5.76	0.0	0.0	75.6	0
22	55	32	0.00	0.88	5.76	0.0	0.0	75.6	0
23	52	31	0.11	0.99	5.87	0.5	0.5	76.1	T
24	33	30	0.20	1.19	6.07	1.0	1.5	77.1	1
25	39	31	0.38	1.57	6.45	T	1.5	77.1	0

COOP SITE DATA AT GAYLORD, MI (APXM4) BACKUP(~=ASOS)
DT/MAX/MIN/PRECIP/MONTHLY/YEARLY/SNOWFALL/MONTHLY/SEASONAL/DEPTH

API	RIL	2005							
01	47	33	0.13	0.13	6.55	${f T}$	T	118.8	T
02	54	31	0.00	0.13	6.55	0.0	T	118.8	0
03	49	27	0.00	0.13	6.55	0.0	T	118.8	0
04	48	28	0.00	0.13	6.55	0.0	T	118.8	0
05	58	30	0.00	0.13	6.55	0.0	T	118.8	0
06	73	36	0.00	0.13	6.55	0.0	T	118.8	0
07	69	36	0.01	0.14	6.56	0.0	T	118.8	0
08	58	34	0.00	0.14	6.56	0.0	${f T}$	118.8	0
09	60	34	0.00	0.14	6.56	0.0	${f T}$	118.8	0
10	68	37	0.00	0.14	6.56	0.0	T	118.8	0
11	70	36	0.00	0.14	6.56	0.0	${f T}$	118.8	0
12	58	32	0.00	0.14	6.56	0.0	T	118.8	0
13	56	29	0.00	0.14	6.56	0.0	T	118.8	0
14	59	31	0.00	0.14	6.56	0.0	T	118.8	0
15	60	35	0.00	0.14	6.56	0.0	T	118.8	0
16	67	36	0.00	0.14	6.56	0.0	T	118.8	0
17	73	42	T	0.14	6.56	0.0	T	118.8	0
18	71	47	0.00	0.14	6.56	0.0	T	118.8	0
19	76	49	0.00	0.14	6.56	0.0	T	118.8	0
20	80	49	0.86	1.00	7.42	0.0	T	118.8	0
21	49	31	0.06	1.06	7.48	0.0	T	118.8	0
22	61	34	0.00	1.06	7.48	0.0	T	118.8	0
23	56	27	0.04	1.10	7.52	0.3	0.3	119.1	T
24	31	26	0.13	1.23	7.65	1.3	1.6	120.4	1
25	32	26	0.29	1.52	7.94	4.9	6.5	126.9	5
\$\$									

\$\$



P.O. Box 30270 Lansing, MI 48909 TEL: (517) 335-9800 FAX: (517) 335-9600

Division: WB

Report to: SY PAULIK

MDEQ-WB-CADILLAC

CADILLAC DISTRICT OFFICE

120 W. CHAPIN STREET, CADILLAC, MI 49601

Total: \$274.60

Lab Work Order #:

50600065

Work Site ID:

LB040160

Site Name:

WILLIAMSBURG RECEIVI

Received:

06/07/2005 06/29/2005

Reported: Collected By:

Samples Received:

No: Sample ID	Sample Description STORM WATER POND	Matrix:	Collection Date
01 AA56224		WATER	06/06/2005
02 AA56225	STORM WATER POND 1 $((\alpha\gamma')^{\alpha})^{\alpha}$	WATER	06/06/2005

I certify that the analysis performed by the MDEQ Environmental Laboratory are accurate and that the laboratory tests were conducted by methods approved by the U.S. Environmental Protection Agency and other appropriate regulatory agencies.

Bob Avery, Laboratory Director



P.O. Box 30270 Lansing, MI 48909 TEL: (517) 335-9800 FAX: (517) 335-9600

Sample	Number AA56224	STORM	WATER	POND				
CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
16887006	Chloride	524	mg/L	1	D	06/09/2005	325.2	LU
	BOD - Carbonaceous 5 days	1300	mg/L	2		06/08/2005	405.1	GW
TO THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN THE PERSON NAMED IN THE PERSON NAMED IN THE PERSON NAMED IN THE PERSON NAMED IN THE PERSON NAMED IN THE PERSON NAMED IN THE PERSON NAMED IN THE PERSON NAMED IN THE PERSON NAMED IN THE P	BOD - Total 5 days	1400	mg/L	2	PERSON SERVICE CONTRACTOR CONTRACTOR CONTRACTOR	06/08/2005	405.1	GW
TDS	Solids - Total Dissolved	2700	mg/L	20	A	06/10/2005	160.1	TK
	KN TP - Digestion	Completed	1		and the state of t	06/13/2005	351.2	DS1
7723-14-0	Total Phosphorus	2.9	mg P/L	0.010		06/13/2005	365.4	DSI
7664-41-7	Ammonia	2.8	mg N/L	0.01		06/09/2005	350.1	RA
7727-37-9	Nitrate + Nitrite	0.1	mg N/L	0.01	D	06/09/2005	353.2	RA
	Conductance	2627	umhos/cm			06/08/2005	120.1	RM
	рĤ	6.63	pН			06/07/2005	150.1	RS
	Solids - Suspended	290	mg/L	4		06/09/2005	160.2	TK
7440-44-0	TOC	590	mg/L	0.5	D	06/10/2005	415.1	MB
	Turbidity	120	NTU	1		06/08/2005	180.1	GW
Sample	Number AA56225	STORM	WATER	POND	1			
CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
16887006	Chloride	518	mg/L	1	D	06/09/2005	325.2	LU
	BOD - Carbonaceous 5 days	3700	mg/L	2	Н	06/08/2005	405.1	GW
	BOD - Total 5 days	3600	mg/L	2	8 H	06/08/2005	405.1	GW
rds	Solids - Total Dissolved	4300	mg/L	20	A	06/10/2005	160.1	TK
The same of the same of	Conductance	2638	umhos/cm		THE RESERVE THE PROPERTY OF THE PERSON OF TH	06/08/2005	120.1	RM
	pH	5.67	pН			06/07/2005	150.1	RS
	Solids - Suspended	240	mg/L	4		06/09/2005	160.2	TK
	Turbidity	90	NTU	1		06/08/2005	180.1	GW

CAS#: Chemical Abstract Service Registry Number

RL: Reporting Limit
ND: Not Detected

ug/L: microgram/liter (ppb)
mg/L: milligram/liter (ppm)
ug/Kg: microgram/kilogram (ppb)
mg/Kg: milligram/kilogram (ppm)

Laboratory Contacts

Inorganic Unit Mgr: Sandy Gregg
Organic Unit Mgr: Carol Smith
Systems Mgmt Unit: George Krisztian



P.O. Box 30270 Lansing, MI 48909 TEL: (517) 335-9800 FAX: (517) 335-9600

Qualifier Code	Qualifier Description
1	Result(s) and RL(s) are estimated due to low surrogate recovery.
2	Result is estimated due to high surrogate recovery.
3	Result(s) and RL(s) are estimated due to low matrix spike recovery.
4	Result is estimated due to high matrix spike recovery.
5	Result and RL are estimated due to low continuing calibration standard criteria failure.
6	Result is estimated due to high continuing calibration standard criteria failure.
7	Result(s) and RL(s) are estimated due to poor precision.
8	Result(s) and RL(s) are estimated due to low recovery of batch QC.
9	Result outside QC acceptance criteria.
A	Value reported is the mean of two or more determinations.
С	Value calculated from other independent parameters.
D	Analyte value quantified from a dilution(s); reporting limit (RL) raised.
E	Result is estimated due to high recovery of batch QC.
F	Free cyanide was not analyzed due to low level of total cyanide.
G	Result and RL are estimated due to initial calibration standard criteria failure.
Н	Recommended laboratory holding time was exceeded.
I	Dilution required due to matrix interference; reporting limit (RL) raised.
J	Analyte was positively identified. Value is an estimate.
JA	Result is estimated due to multiple Aroclors present.
JC	Result is estimated since confirmation analysis did not meet acceptance criteria
'ID	Due to severe degradation, specific Aroclor identification is difficult and quantitation is estimated.
K	RL(s) raised due to matrix interferences.
KR	RL(s) raised due to low sample volume submitted.
KS .	RL(s) raised due to low total solids.
KW	RL(s) raised due to light sample weight.
LB	Reported library search compounds are tentative identifications with estimated concentrations.
M	The level of the method preparation blank (MPB) is reported in the qualifier column.
N	Non-homogeneous sample made analysis of sample questionable.
0	Result and RL estimated due to analysis from an open vial.
P	Recommended sample collection/preservation technique not used; reported result(s) is an estimate.
Q	Quantity of sample insufficient to perform analyses requested.
R	Result confirmed by re-extraction and analysis.
S	Supernatant analyzed.
T	Reported value is less than the reporting limit (RL). Result is estimated.
V	Value not available due to dilution.
W	Reported value is less than the method detection limit (MDL).
X	Methods 8260 & 624 are used to analyze volatile organics that have boiling points below 200°C.
	2-Methylnaphthalene & naphthalene have boiling points above 200°C and are better suited to analysis
	by methods 8270 or 625 as semivolatile organics.
PI	Possible interference may have affected the accuracy of the laboratory result
Z	Result reported below the RL to meet the TDL in RRD Op Memo 2 (10/22/04) multiplied by applicable dilution factor.

CAS#: Chemical Abstract Service Registry Number

RL: Reporting Limit ND: Not Detected

ug/L: microgram / liter (ppb)

mg/L: milligram/liter (ppm)
ug/Kg: microgram/kilogram (ppb) mg/Kg: milligram/kilogram (ppm) Laboratory Contacts

Inorganic Unit Mgr: Sandy Gregg Organic Unit Mgr. Carol Smith Systems Mgmt Unit: George Krisztian

QUERY DEFINITION:

MDEQ AQD QBE -- UNNAMED

1. STATE REGISTRATION NUMBER equal to "MISC-00264"

2. DATE OF INCIDENT/EVENT from 06/01/2005 to 07/01/2005

GROUPING EXPRESSION: 1 AND 2

This query has produced 46 records out of a total of 708 COMPLAIN records (6.5%).

June 2005

07/01/2005

PLANT NAME	DATE OF INCIDENT	COMPL. NAME	COMPL. STREET
WILLIAMSBURG RECEIVING AND STO	06/01/2005	SANDY KINNEE	10125 MUNRO
WILLIAMSBURG RECEIVING AND STO WILLIAMSBURG RECEIVING AND STO	06/02/2005	NLA BOALS	10091 MONRO
WILLIAMSBURG RECEIVING AND STO	06/03/2005	NOLA BOALS	10091 MUNRO
WILLIAMSBURG RECEIVING AND STO	06/03/2005	SANDY KINNEE	10125 MUNRO
WILLIAMSBURG RECEIVING AND STO	06/04/2005	SANDY KINNEE	10125 MUNRO
WILLIAMSBURG RECEIVING AND STO	06/06/2005	DENNIS FOX	10423 ELK LAKE RD
WILLIAMSBURG RECEIVING AND STO	06/09/2005	NOLA BOALS	10091
WILLIAMSBURG RECEIVING AND STO	06/09/2005	SANDY KINNEE	10125 MUNRO
WILLIAMSBURG RECEIVING AND STO			
WILLIAMSBURG RECEIVING AND STO	06/10/2005	GERALDINE CLOUSE	ANGELL RD
WILLIAMSBURG RECEIVING AND STO	06/12/2005	MIKE MATEN	11274 MUNRO
WILLIAMSBURG RECEIVING AND STO WILLIAMSBURG RECEIVING AND STO	06/13/2005	NOLA ROALS	10091 MUNRO
WILLIAMSBURG RECEIVING AND STO	06/13/2005	NOLA BOALS	10091 MUNRO
WILLIAMSBURG RECEIVING AND STO WILLIAMSBURG RECEIVING AND STO	06/13/2005	RENADA WILSON	ANGEL RD
WILLIAMSBURG RECEIVING AND STO	06/13/2005	SANDY KINNEE	10125 MUNRO
WILLIAMSBURG RECEIVING AND STO			
WILLIAMSBURG RECEIVING AND STO	06/14/2005	DENNIS FOX	10423 ELK LAKE RD
WILLIAMSBURG RECEIVING AND STO	06/19/2005	NOLA BOALS	10091 MUNRO
WILLIAMSBURG RECEIVING AND STO	06/20/2005	DENNIS FOX	10423 ELK LAKE RD
WILLIAMSBURG RECEIVING AND STO	06/21/2005	NOLA BOALS	10091 MUNRO
WILLIAMSBURG RECEIVING AND STO	06/22/2005	NOLA BOLES	10091 MUNROE ROAD
WILLIAMSBURG RECEIVING AND STO	06/22/2005	SANDY KINNEE	10125 MUNRO
WILLIAMSBURG RECEIVING AND STO	06/23/2005	NOLA BOALS	10091 MUNRO
WILLIAMSBURG RECEIVING AND STO	06/24/2005	ROBIN BUSTANCE	10329 ELK LAKE RD
WILLIAMSBURG RECEIVING AND STO			10125 MUNRO
WILLIAMSBURG RECEIVING AND STO	06/24/2005	STEVE RYBARSYK	11518 CLEARVIEW DR
WILLIAMSBURG RECEIVING AND STO	06/25/2005	DENNIS FOX	10423 ELK LAKE RD
WILLIAMSBURG RECEIVING AND STO	06/25/2005	ROBIN BUSTANCE	10329 ELK LAKE RD
WILLIAMSBURG RECEIVING AND STO	06/25/2005	SANDY KINNEE	10125 MUNRO
WILLIAMSBURG RECEIVING AND STO	06/26/2005	NOLA BOALS	10091 MUNRO
WILLIAMSBURG RECEIVING AND STO WILLIAMSBURG RECEIVING AND STO	06/26/2005	NOLA BOALS	10091 MUNRO
WILLIAMSBURG RECEIVING AND STO	06/26/2005	NOLA BOALS	10091 MUNRO
WILLIAMSKIRG RELEIVING AND SIG	116/26/2005	NOTA RIMIS	10091 MUNRO
WILLIAMSBURG RECEIVING AND STO	06/26/2005	NOLABOALS	10091 MUNRO
WILLIAMSBURG RECEIVING AND STO	06/26/2005	SANDY KINNEE	10125 MUNRO
WILLIAMSBURG RECEIVING AND STO	06/27/2005	DEBRA MCKEON	9916 ELK LAKE TRAIL
WILLIAMSBURG RECEIVING AND STO	06/27/2005	NOLA BOALS	10091 MUNRO
WILLIAMSBURG RECEIVING AND STO	06/27/2005	ROBIN BUSTANCE	10326 ELK LAKE RD
WILLIAMSBURG RECEIVING AND STO	06/27/2005	ROBIN BUSTANCE	10329 ELK LAKE RD
WILLIAMSBURG RECEIVING AND STO		SANDY KINNEE	10125 MUNRO
WILLIAMSBURG RECEIVING AND STO		STEVE RYBARSYK	11518 CLEARVIEW DR
WILLIAMSBURG RECEIVING AND STO		SANDY KINNEE	10125 MUNRO
WILLIAMSBURG RECEIVING AND STO		JACKIE SMITH	10347 ELK LAKE RD
WILLIAMSBURG RECEIVING AND STO		ROBIN BUSTANCE	10329 ELK LAKE RD
WILLIAMSBURG RECEIVING AND STO		GERALDINE CLOUSE	10010 ELK LAKE TRAIL
WILLIAMSBURG RECEIVING AND STO	06/30/2005	LYNN VANDENKER	9936 ELK LAKE TRAIL

MDEQ AQD QBE -- WRS

07/01/2005

QUERY DEFINITION:

1. STATE REGISTRATION NUMBER equal to "MISC-00264"

2. DATE OF INCIDENT/EVENT from 01/01/2005 to 05/30/2005

GROUPING EXPRESSION: 1 AND 2

This query has produced 9 records out of a total of 708 COMPLAIN records (1.3%).

PLANT NAME	DATE OF INCIDENT	COMPL. NAME	COMPL. STREET
WILLIAMSBURG RECEIVING AND STO	02/28/2005	SANDY KINNEE	10125 MUNRO
WILLIAMSBURG RECEIVING AND STO	04/08/2005	PATRICIA PLUCKER	11115 SUMMERTIME TRAIL
WILLIAMSBURG RECEIVING AND STO	04/09/2005	SANDY KINNEE	10125 MUNRO
WILLIAMSBURG RECEIVING AND STO	04/10/2005	NOLA BOALS	10091 MUNRO
WILLIAMSBURG RECEIVING AND STO	04/13/2005	NOLA BOLES	10091 MUNRO ROAD
WILLIAMSBURG RECEIVING AND STO	04/14/2005	NOLA BOALS	10091 MUNRO
WILLIAMSBURG RECEIVING AND STO	04/17/2005	ROBERTA KOLAK	10100 ELK LAKE TRAIL
WILLIAMSBURG RECEIVING AND STO	05/20/2005	SANDY KINNEE	10125 MUNRO
WILLIAMSBURG RECEIVING AND STO	05/28/2005	SANDY KINNEE	10125 MUNRO

January > May, 2005

MDEQ AQD QBE -- WRS

07/01/2005

QUERY DEFINITION:

1. STATE REGISTRATION NUMBER equal to "MISC-00264"

2. DATE OF INCIDENT/EVENT from 01/01/2004 to 12/31/2004

GROUPING EXPRESSION: 1 AND 2

7.

This query has produced 6 records out of a total of 708 COMPLAIN records (0.8%).

PLANT NAME	DATE OF INCIDENT	COMPL. NAME	COMPL. STREET
WILLIAMSBURG RECEIVING AND STO	07/02/2004	ROBIN BUSTANCE	10329 ELK LAKE ROAD
WILLIAMSBURG RECEIVING AND STO WILLIAMSBURG RECEIVING AND STO		NOLA BOALS	10329 ELK LAKE RD 10091 MUNRO RD
WILLIAMSBURG RECEIVING AND STO WILLIAMSBURG RECEIVING AND STO			10125 MUNRO MUNRO ROAD
WILLIAMSBURG RECEIVING AND STO			10091 MUNRO ROAD

2004

MDEQ AQD QBE -- WRS

07/01/2005

QUERY DEFINITION: 1. STATE REGISTRATION NUMBER equal to "MISC-00264"

2. DATE OF INCIDENT/EVENT from 01/01/2003 to 12/31/2003

GROUPING EXPRESSION: 1 AND 2

This query has produced 2 records out of a total of 708 COMPLAIN records (0.3%).

DATE OF

PLANT NAME

INCIDENT COMPL. NAME

COMPL. STREET

WILLIAMSBURG RECEIVING AND STO 10/09/2003 NOLA BOALS

WILLIAMSBURG RECEIVING AND STO 10/10/2003 SANDY KINNEY

10091 MUNRO RD

MUNRO RD



OMI, Inc. 606 Franklin Street Traverse City, MI 49686 Tel 231 922.4922 Fax 231 992.8170

CADILLAC DISCHOOL OFFICE

September 14, 2005

Sy Paulik MDEQ Cadillac District Office 120 W. Chapin St. Cadillac MI 49601-2158

Dear Sy:

Enclosed please find the results for your water samples. Analyses were performed according to the "Standard Methods for Examination of Water and Wastewater," 18th Edition.

If you have any questions concerning this result, please feel free to contact our laboratory by phoning (231) 922-4922.

Sincerely

Lab Analyst

Enclosure: Lab Report, Invoice

OPERATIONS MANAGEMENT INTERNATIONAL TRAVERSE CITY WASTEWATER TREATMENT PLANT

ANALYTICAL LABORATORY REPORT

CLIENT: MDEQ

REPORT DATE: 09/14/05

ADDRESS: Cadillac District Office

120 W. Chapin St.

Cadillac MI 49601-2158

PROJECT:

Sample ID	Sample Date	Analysis	Units	Result	11 / - 1
None	7/28/05	Chloride	Mg/L	104 .	"Stormwater" pand
		BOD	Mg/L	*	/
Valve 01	8/10/05	Chloride	Mg/L	2,000	1 nt
		BOD	Mg/L	17,967	- July p
		NH3	Mg/L	14.6	- pit east of lagours
WRS 02	8/10/05	Chloride	Mg/L	874	- pit east
WRS 03	8/10/05	Chloride	Mg/L	180	, ' _L
		BOD	Mg/L	703	- Huminta provi
		NH3	Mg/L	.171	
					1
					1
					1
			1		
D 1 10 10	V 34 - /Y				1

*Results Dilution 1% Mg/L
.5 385
.3 396
.1 1,090
.03 3.800

Signature, Lab Analyst

INVOICE

MDEQ Cadillac District Office 120 W. Chapin St. Cadillac, MI 49601-2158 Date: September 14, 2005 Project No. TRAVE916001 Invoice No.

Attn: Sy Paulik

This invoice is for laboratory analysis performed.

Sample Identification: Valve 01, Valve 02

WRS 02, WRS 03

 (4) Chloride analysis
 @ \$15.00
 \$60.00

 (3) NH3 analysis
 @ \$10.00
 \$30.00

 (2) BOD analysis
 @ \$20.00
 \$40.00

TOTAL AMOUNT DUE

\$ 130.00

Due and Payable Upon Receipt

Please send your remittance to:

Operations Management International, Inc. 606 Franklin Street Traverse City, MI 49686



4125 Cedar Run Rd., Suite B Traverse City, MI 49684 Phone 231-946-6767 Fax 231-946-8741 www.sosanalytical.com

COMPANY:

OMI

NAME:

PROJECT NO:

WSSN:

WELL PERMIT:

TAX ID:

LOCATION:

606 FRANKLIN

TCWWTP

TRAVERSE CITY

MI

SOS PROJECT NO:

SAMPLED BY:

053372 - 1

LIZ HART/OMI

DATE RECEIVED: TIME RECEIVED:

8:07 AM

SAMPLE ID:

DEQ

8/1/05

DATE SAMPLED:

TIME SAMPLED:

7/28/05

SAMPLE MATRIX:

GRAB/WATER

COUNTY: TWP:

INORGANICS

Analysis CHLORIDE EPA 325.2 Concentration LOD 104

3

Units mg/L (PPM)

Date Analyst Completed

Drinking Water Reg Limit(MCL)

KMC 8/2/05

ND = NOT DETECTED LOD = LIMIT OF DETECTION SMCL = FEDERAL NON-ENFORCEABLE LIMIT MCL = MAXIMUM CONTAMINANT LEVEL s.u. = STANDARD pH UNITS REPORTED AT 25 C DISS = DISSOLVED

Page 1 of 1

APPROVED BY:

SHANNA SHEA LAB MANAGER



ote:s is a four part form, please print using pen, pressing firmly - no dittos. Thank you.

4125 Cedar Run Rd, Suite B Traverse City, MI 49684

Traverse City, MI 49684 (231) 946-6767 • FAX (231) 946-8741

WSSN/Project No.			Site Addr	ess	(23	1) 740-	Owne	r/Company	
Trawsp			month.	40K,128	1		5/	10	OT.
•			W.	gill-ins	/	ANA	LYSIS INFO	RMATION	1 de
AMPLER Name of Sampler	Company				1				21-
		Standard Control of State Control							
12 Stut	000	1							
1. 7. 7.				of Containers	5 7				
ample Point dentification)	Sample Date	Sample Type	Sample Size	Rush Sample				Other I Requir	Analysis ed?
DEO	7-28-05	Grass	125m1		1 x				
	1-0,00				1				
	*								
	·								
			-			-			
	*								
						+	-	+	
						+++	+	+	
						\perp	\rightarrow		
						+	-	-	
SC. INFORMATION									
OTE #			7	EMPERATURI	F BFCFI	VFD			
IVOICE TO:				SULTS TO: (In			Phone #)		
Costs				City)				,
				d	1				
		Е	-mail:						
any samples are rush please	e indicate above.								
LIVERED BY:									
elinquished by	Date	Time	F	leceived By			Date		Time
J 570W	8-1.0	1 8:0	AC						
,			,						
		-		***************************************					
			F	eccived in La	ib	2	Date	1-05	Time 7
				1/)/	UL		10	105	DWI



4125 Cedar Run Rd., Suite B Traverse City, MI 49684 Phone 231-946-6767 Fax 231-946-8741 www.sosanalytical.com

COMPANY:

OMI

SOS PROJECT NO: SAMPLED BY:

053372 - 1

NAME:

PROJECT NO:

TCWWTP

DATE RECEIVED:

LIZ HART/OMI

TIME RECEIVED:

8/1/05 8:07 AM

SAMPLE ID:

DEQ

WELL PERMIT: TAX ID: LOCATION:

WSSN:

606 FRANKLIN

DATE SAMPLED:

7/28/05

TRAVERSE CITY

TIME SAMPLED: SAMPLE MATRIX:

GRAB/WATER

COUNTY: TWP:

INORGANICS

Analysis CHLORIDE EPA 325.2 Concentration LOD 104

Units mg/L (PPM)

Date Analyst Completed

Drinking Water Reg Limit(MCL)

KMC 8/2/05

ND = NOT DETECTED LOD = LIMIT OF DETECTION SMCL = FEDERAL NON-ENFORCEABLE LIMIT MCL = MAXIMUM CONTAMINANT LEVEL s.u. = STANDARD pH UNITS REPORTED AT 25 C DISS = DISSOLVED

Page 1 of 1

APPROVED BY:

SHANNA SHEA LAB MANAGER



ote. .s is a four part form, please print using pen, pressing firmly - no dittos. Thank you.

4125 Cedar Run Rd, Suite B Traverse City, MI 49684

(231) 946-6767 · FAX (231) 946-8741

WSSN/Project No.			Site Add				Owner/Company Name				
TOWWIP		1	doi.	10K12	+		1	111	, 27		
						AN	IALYSIS IN	FORMATION			
AMPLER	C				1						
Name of Sampler	Company					1 [
12 Stat	0000	1_									
<u> </u>			No	of Container	s ¬			_			
Sample Point	Sample	Sample		Rush	ŤΤ			Other	Analysis		
Sample Point Identification)	Date	Туре	Sample Size	Sample				Requi	Analysis red?		
111-0	_	Turls	1 x5m1			/					
1/1-67	72805		12311			X					
			-					-			
			 	-	+-+			-			
						_	+-+-				
				—	+						
			-	-		_					
			 	 	1	-+-	+				
			1	†	+						
ISC. INFORMATION											
JOTE #			7	EMPERATUR	E REC	EIVED					
NVOICE TO:				SULTS TO: (L			nd Phone #	1			
								'			
1 275				(1)	Line						
		E	E-mail:								
f any samples are rush pleas	e indicate above.										
ELIVERED BY: delinquished by	Date	Time		Received By			Da	te .	Time		
lettiquisited by	2 1 0	10	- A	received by) Du		11110		
7 2/0M	0.1.0	3 8:0	174				-				
		-			1						
				Received in L	dp /	0	Da	e 1-0/-	Time		



ote s is a four part form, please print using pen, pressing firmly - no dittos. Thank you.

4125 Cedar Run Rd, Suite B Traverse City, MI 49684

(231) 946-6767 · FAX (231) 946-8741

WSSN/Project No.			Site Addre	ess			Owne	r/Company Name
Truck IF				Au Comment				
AMPLER						ANAI	LYSIS INFO	HMATION
	Company							
2 11 -								
				-				
				of Containe	ers			
Sample Point Identification)	Sample Date	Sample Type	Sample Size	Rush Sample				Other Analysi Required?
	7-1		/				-	
								- +
V312-01	·		10	4			-	A
8-10-12-01	and the second second	والمراوية المراوية	d.(DOO	11,9	6		- H.6
1 . 1 1 1 1 1 1 1 1	i de en very despis altre etca en i della de en	American Production of the State of Sta	1	80	70	3		0171

					\top			
ISC. INFORMATION			I	L				
UOTE # NVOICE TO:				EMPERATU		EIVED Fax # and	Phone #1	
NVOIGE 10.			ILL	OMB 10.	(IIICIAGE	iux # unu	r none #)	
		_						
f any samples are rush please ind	icate above.		-mail: DATE:		8			
ELIVERED BY:		,			-			
Relinquished by	Date 8.1.0	Time	- A	eceived By	7		Date	Time
11/12								
2								
			R	eceived in	Lab	_	Date	Time



e: is a four part form, please print using pen, pressing firmly - no dittos. Thank you.

4125 Cedar Run Rd, Suite B Traverse City, MI 49684

(231) 946-6767 · FAX (231) 946-8741

WSSN/Project No.			Site Addre							mpany Name
TownTP		(aclai	rant	oh.	15	+	10	.(.,	IONT TION
SAMPLER							ANAL	YSIS IN	FORMA'	TION
Name of Sampler	Company				٦					
Trains of Dampior	Company	ser.								
20	1)/=0	9						_		
7			No.	of Containe	rs ¬				_	
Sample Point (Identification)	Sample Date	Sample Type	Sample Size	Rush Sample	Ť	TT		T	T	Other Analysis Required?
(identification)		(SIGN)	Scem		1	1.	_	_	+	nequirear
Value -01	81605				1	X			\perp	
WRS-02			age of the second			X				
1125-03		1/			1	Y	T			
1723-03			1	-	1	1	_	-	++	***************************************
8										
						1 1				
					+	+		_	+ +	
					_	-			-	
							1			
					+			1	\top	
				-	-	+		-	-	
			-	-	+	+		+-	++	
					+-	+	-	+	+	
			<u></u>	<u></u>						
MISC. INFORMATION										
QUOTE #				EMPERATU!						
INVOICE TO:			RES	SULTS TO: (Includ	le Fax	# and P	hone #	·)	
Cont				Drag						
		E	:-mail:							
If any samples are rush please	indicate above.							·		
DELIVERED BY:										
Relinquished by	Date	Time		Received By				Da	te	Time
Joseph X. Sw	2-15-05	10:2	3							
	-	-	F	Received in I	ab			Dat	te	Time
			1	N. Sch		Com		18	te [15/0	5 10:28



e: s a four part form, please print using pen, pressing firmly - no dittos. Thank you.

4125 Cedar Run Rd, Suite B Traverse City, MI 49684 (231) 946-6767 • FAX (231) 946-8741

WSSN/Project No. Site Address Owner/Company Name ANALYSIS INFORMATION SAMPLER Name of Sampler Company No. of Containers Sample Point (Identification) Other Analysis Required? Sample Sample Type Sample Rush Date Size Sample MISC. INFORMATION QUOTE #_ TEMPERATURE RECEIVED INVOICE TO: RESULTS TO: (Include Fax # and Phone #) E-mail: If any samples are rush please indicate above. RUSH DUE DATE: DELIVERED BY: Relinquished by Date Time Received By Date Time 13 75 Received in Lab Date Time



4125 Cedar Run Rd., Suite B Traverse City, MI 49684 Phone 231-946-6767 Fax 231-946-8741 www.sosanalytical.com

COMPANY:

OMI

SOS PROJECT NO:

053657

NAME:

PROJECT NO:

SAMPLED BY:

SY/DEQ

WSSN:

DATE SAMPLED:

8/10/2005

WELL PERMIT:

TCWWTP

TIME SAMPLED:

TAX ID: LOCATION:

606 FRANKLIN

SAMPLE MATRIX

GRAB/WATER

DATE RECEIVED TIME RECEIVED:

8/15/2005 10:28 AM

TRAVERSE CITY

MI

COUNTY: TWP:

INORGANICS

No: Analysis	Concentration	LOD	<u>Units</u>	Analyst	Date Completed	Drinking Water Reg Limit(MCL)
SAMPLE ID: VALVE-01						
1 CHLORIDE EPA 325.2	2,000	15	mg/L (PPM)	KMC	8/16/2005	
SAMPLE ID: WRS-02					-	The second secon
2 CHLORIDE EPA 325.2	874	3	mg/L (PPM)	KMC	8/16/2005	
SAMPLE ID: WRS-03					77	-
3 CHLORIDE EPA 325.2	180	3	mg/L (PPM)	KMC	8/16/2005	

ND = NOT DETECTED LOD = LIMIT OF DETECTION SMCL = FEDERAL NON-ENFORCEABLE LIMIT MCL = MAXIMUM CONTAMINANT LEVEL s.u. = STANDARD pH UNITS REPORTED AT 25 C DISS = DISSOLVED

APPROVED BY:

SHANNA GHEA LAB MANAGER

Manue Sher

Page 1 of 1



4125 Cedar Run Rd., Suite B Traverse City, MI 49684 Phone 231-946-6767 Fax 231-946-8741 www.sosanalytical.com

COMPANY:

OMI

TCWWTP

NAME:

PROJECT NO:

WSSN:

WELL PERMIT:

TAX ID:

LOCATION:

606 FRANKLIN

TRAVERSE CITY

SOS PROJECT NO:

053657

SAMPLED BY:

SY/DEQ

DATE SAMPLED:

8/10/2005

TIME SAMPLED:

SAMPLE MATRIX:

GRAB/WATER

DATE RECEIVED:

8/15/2005

TIME RECEIVED:

10:28 AM

COUNTY:

TWP:

INORGANICS

No: Analysis	Concentration	LOD	<u>Units</u>	Analyst	<u>Date</u> Completed	Drinking Water Reg Limit(MCL)
SAMPLE ID: VALVE-01						
1 CHLORIDE EPA 325.2	2,000	15	mg/L (PPM)	KMC	8/16/2005	
SAMPLE 1D: WRS-02					1	
2 CHLORIDE EPA 325.2	874	3	mg/L (PPM)	KMC	8/16/2005	
SAMPLE ID: WRS-03					I	
3 CHLORIDE EPA 325.2	180	3	mg/L (PPM)	KMC	8/16/2005	

ND = NOT DETECTED LOD = LIMIT OF DETECTION SMCL = FEDERAL NON-ENFORCEABLE LIMIT MCL = MAXIMUM CONTAMINANT LEVEL s.u. = STANDARD pH UNITS REPORTED AT 25 C DISS = DISSOLVED

APPROVED BY:

SHANNA SHEA LAB MANAGER

Page 1 of 1

CUSTODY TRANSFER RECORD e: is a four part form, please print using pen, pressing firmly - no dittos. Thank you. **SOS** ANALYTICAL 4125 Cedar Run Rd, Suite B Traverse City, MI 49684 (231) 946-6767 · FAX (231) 946-8741 Site Address WSSN/Project No. Owner/Company Name Franklins ANALYSIS INFORMATION SAMPLER Name of Sampler Company No. of Containers Sample Point Sample Sample Sample Rush Other Analysis (Identification) Date Type Size Sample Required? Soom (5)010 MISC. INFORMATION TEMPERATURE RECEIVED QUOTE # INVOICE TO: RESULTS TO: (Include Fax # and Phone #)

E-mail:

If any samples are rush please indicate above. RUSH DUE DATE:

Typical Brine Recipe

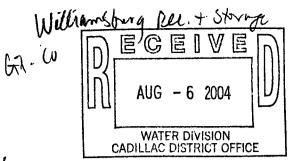
Water	5000 gallons	41700 pounds
Sodium Bisulfite		1200
Calcium Chloride		1500
Cherries		45000

Chemical Proportions

		Sodium	Hydrogen	Sulfur	Oxygen	
Soduim	Mol Wt.	14	1	32	48	95
Bisulfite	Percent	15%	1%	34%	51%	1
NaHSO3						
Calcium		Calcium	Chloride			•
Chloide	Mol Wt.	40	35.4	75.4		
CaCl2	Percent	53%	47%	100%		

Weight Percent

Sodium	0.424
Calcium	1.908
Chloride	1.689
Total	4.02 by weight



Date: 8/3/04

т	٦_		
ı	()	Ξ.	

Го:	Fince Hener
	Water Div, Cydilla
	100000

Attached is a copy of Analysis Request Sheet for your records.

riease note.			
	 	 ····	

Sample Receiving Staff Michigan Department of Environmental Quality, Environmental Science & Services Division, Laboratory Section 3350 N MLK Jr Blvd #44, Rm 303 Lansing, MI 48906-2933

Telephone #: 517-335-9800 Telefax #: 517-335-9600

Coolers/Packing containers

- Please include return shipping labels with sample coolers/containers.
- All other coolers/containers can be picked up at MDEQ Facility @ 815 Terminal Road, Lansing, MI 48906. For arrangements, please call 517-335-9800 or 517-335-9686 and leave a message.
- Coolers/containers that are not picked up in a timely manner (2 weeks) will be disposed of or used for sampling purposes.

DEQ			VIRONMENT	NVIRONMENTAL AL LABORATOR	Ϋ́		White
LAB WORK ORDER # /	407.00290		ANALYSI	S REQUEST SHEE	T	MATRIX=W	ATED
SITE CODE NUMBER	SITE NAME WRS	3	CIRCLE ONE	1. NO SITE FUN 2. CMI (Non RR 3. NPDES 4. OTHER-list he	D) 6. RRD-LUST - 7. RRD-SUPER	iUP - State Fu Federal	ınded
WD	DISTRICT/OFFICE	MDEO PROJEC	T MANAGER HIME	E-MAIL AD	mtchigan and 1020	ווין	FE CODES? of NO ch parameters
PRIMARY CONTACT PER		FIRM NAME (if a	pplicable)	PHONE 60 ×6203	AY: 04 INDEX: 37809 PROJECT: 48/104	PGA: 442 PH:	20 Z
IST CHOICE:	OVERFLOW LAB (Required for 2ND CHOIC	Funded RRD & C			E-MAIL ADDRESSES TO SEND ADDIT	ONAL REPORTS T	ro:
COLLECTED BY:	/	-	PHONE:		1.)		
Janice f	feur.	** SAFETY I	5- <i>3960</i> NFORMATI E BACK OI	ON REQUIRED	2.)		
LAB USE ONLY	SAMPLE DESCRI			E COLLECTED TIME	СОММ	PNTS	· · · · · · · · · · · · · · · · · · ·
26701			MM/RIDAYY	MILITARY	4.		
1 44 3639	Sample #1		07/26/04	2030	Kinney Collectes	1-040	
2 AA V 92	Sample II 2		07/27/04	1030	odois		
3 AA	<u>'</u>				Sanples	Recei	<u>vec)</u>
4 🗚		· · ·			War		·· · · · · · · · · · · · · · · · · · ·
5 AA							
_6 AA						 -	
7 AA						- · 	
8 AA							
9 AA	<u> </u>						· · · · · ·
10 JAA		<u>-</u>					
ORGANI VOA VOLATILES (8260		GEN DO Diss Oxygen	VERAL CHEN	MISTRY 1 2 3 4 5 6 7 8 9 10		ORGANIC 1 2 3 4 5 6	7 8 9 10
Full List	1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10	GN NO ₂ e-Phos Residue SS	····	1234567891	MAD Diss-Field Filter MD Diss-Lab Filtere	d 123456	7 8 9 10
ON PESTICIDES/PCBS		Residue TDS		1 2 3 4 5 6 7 8 9 10	Circle Requested Met		
(8081/8082)		BOD Tot 5 day BOD Carb 5 da		12345678910	ICP-MS (200.8/6020)	123456	78910
Perticides only	1 2 3 4 5 6 7 8 9 10	Turbidity		1 2 3 4 5 6 7 8 9 10		123456	7 8 9 10
NA BASE NEUTRAL &		CA Chlorophyll		1 2 3 4 5 6 7 8 9 10		123456	
(8270)	1 2 3 4 5 6 7 8 9 10	<u>@@</u>	•	1 2) 3 4 5 6 7 8 9 10 12 3 4 5 6 7 8 9 10	B Fe Li	123456 ieries)	7 8 9 10
PNAs only	1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10	NO3 + NO2 NI KJEL N/To(P)		23 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10	Ca Mg Na K	123456	
•	1 2 3 4 5 6 7 8 9 10	S Sulfide		1 2 3 4 5 6 7 8 9 10	Celd Vapor AA (245.1		
SPECIAl ibrary Search (Qualitative)	L REQUESTS	GP Phenolics		1 2 3 4 5 6 7 8 9 10		123456	7 8 9 10
Volatiles	1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10	GB Total CN Amenable CN		1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10	HCQ,CO3	123456	7 8 9 10
	1 2 3 4 5 6 7 8 9 10	GCN Available CN		2345678910	**************************************	123456	
	RELEASED BY / ORGANI	ZATION			BY/ORGANIZATION >	DATE	TIME
Print Name & Organization	ice Hener MDE	Q-WA		rint Name & Organization			
	military		S	ignature			
Signature Print Name & Organization Signature g		ves		rint Name &	3 1 DE	şi .	
Signature	Drop	V1-3		ignature	Book Recons	7/29/04	1155
Print Name &				rint Name &	> > >	1	
Organization Signature	·		c	rganization ignature		-	
,			10				



P.O. Box 30270 Lansing, MI 48909 TEL: (517) 335-9800 FAX: (517) 335-9600

Division: WD

Report to: JANICE HEUER

MDEQ-WD-CADILLAC

CADILLAC DISTRICT OFFICE

120 W CHAPIN STREET, CADILLAC, MI 49601

Total: \$158.96

Lab Work Order #:

40700290

Work Site ID:

LB040061 WRS

Site Name:

Received:

07/29/2004

Reported:

08/30/2004

Collected By:

JANICE HEUER

Samples Received:

No: Sample ID 01 AA36391 02 AA36392

Sample Description

SAMPLE #1 SAMPLE #2

Matrix:

Collection Date

WATER WATER 07/26/2004 07/27/2004

I certify that the analysis performed by the MDEQ Environmental Laboratory are accurate and that the laboratory tests were conducted by methods approved by the U.S. Environmental Protection Agency and other appropriate regulatory agencies.

Bob Avery, Laboratory Director



P.O. Box 30270 Lansing, MI 48909 TEL: (517) 335-9800 FAX: (517) 335-9600

Sample	Number AA36391	SAMPL	E #1					
CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	Alkalinity - Bicarbonate	301	mg/L	10		08/26/2004	Calculated	LU
	Alkalinity - Carbonate	ND	mg/L	10		08/26/2004	Calculated	LU
and the second section of the second	Alkalinity (as CaCO3)	301	mg/L	20	19.34 (C.10) 19.46 (C.10) 15.50 (C.10) 15.50 (C.10) 15.50 (C.10) 15.50 (C.10) 15.50 (C.10) 15.50	08/10/2004	310.1	LU
16887006	Chloride	504	mg/L	1	D	08/13/2004	325	LU
antinoses contacto consumo	Sulfate	14	mg/L	2		08/13/2004	375.1	LU
	COD	7900	mg/L	5	D	08/20/2004	410	MB
	KN TP - Digestion	Completed	1			08/17/2004	351.2	DS1
7723-14-0	Total Phosphorus	4.3	mg P/L	0.010	I	08/17/2004	365.4	DS1
7664-41-7	Ammonia	.06	mg N/L	0.01		08/12/2004	350.1	RA
7727-37-9	Nitrate + Nitrite	.04	mg N/L	0.01		08/12/2004	353.2	RA
Sample	Number AA36392	SAMPL	E #2					
	Number AA36392 Analyte Name	SAMPL Result	E #2 Unit	RL	Qualifier	Date Tested	Method	Analyst
				RL 10	Qualifier	Date Tested 08/26/2004	Method Calculated	Analyst LU
	Analyte Name	Result	Unit		Qualifier			•
	Analyte Name Alkalinity - Bicarbonate	Result 301	Unit mg/L	10	Qualifier	08/26/2004	Calculated	LU
CAS#	Analyte Name Alkalinity - Bicarbonate Alkalinity - Carbonate	Result 301 ND	Unit mg/L mg/L	10 10	Qualifier D	08/26/2004 08/26/2004	Calculated Calculated	LU LU
CAS#	Analyte Name Alkalinity - Bicarbonate Alkalinity - Carbonate Alkalinity (as CaCO3)	Result 301 ND 301	Unit mg/L mg/L mg/L	10 10 20		08/26/2004 08/26/2004 08/10/2004	Calculated Calculated 310.1	LU LU LU
CAS#	Analyte Name Alkalinity - Bicarbonate Alkalinity - Carbonate Alkalinity (as CaCO3) Chloride	Result 301 ND 301 143	Unit mg/L mg/L mg/L mg/L	10 10 20 1		08/26/2004 08/26/2004 08/10/2004 08/13/2004	Calculated Calculated 310.1 325	LU LU LU
CAS#	Analyte Name Alkalinity - Bicarbonate Alkalinity - Carbonate Alkalinity (as CaCO3) Chloride Sulfate	Result 301 ND 301 143 20	Unit mg/L mg/L mg/L mg/L mg/L mg/L mg/L	10 10 20 1 2	D	08/26/2004 08/26/2004 08/10/2004 08/13/2004 08/13/2004	Calculated Calculated 310.1 325 375.1	LU LU LU LU LU
CAS#	Analyte Name Alkalinity - Bicarbonate Alkalinity - Carbonate Alkalinity (as CaCO3) Chloride Sulfate COD	Result 301 ND 301 143 20 8000	Unit mg/L mg/L mg/L mg/L mg/L mg/L mg/L	10 10 20 1 2	D	08/26/2004 08/26/2004 08/10/2004 08/13/2004 08/13/2004 08/20/2004	Calculated Calculated 310.1 325 375.1 410	LU LU LU LU LU MB
Sample CAS# 16887006 7723-14-0 7664-41-7	Analyte Name Alkalinity - Bicarbonate Alkalinity - Carbonate Alkalinity (as CaCO3) Chloride Sulfate COD KN TP - Digestion	Result 301 ND 301 143 20 8000 Completed	Unit mg/L mg/L mg/L mg/L mg/L mg/L mg/L	10 10 20 1 2 5	D D	08/26/2004 08/26/2004 08/10/2004 08/13/2004 08/13/2004 08/20/2004 08/17/2004	Calculated Calculated 310.1 325 375.1 410 351.2	LU LU LU LU LU MB DS1

CAS# : Chemical Abstract Service Registry Number

RL: Reporting Limit
ND: Not Detected

ug/L: microgram/liter (ppb)
mg/L: milligram/liter (ppm)
ug/Kg: microgram/kilogram (ppb)
mg/Kg: milligram/kilogram (ppm)

Laboratory Contacts

Inorganic Unit Mgr: Sandy Gregg
Organic Unit Mgr: Carol Smith
Systems Mgmt Unit: George Krisztian



Blosson

P.O. Box 30270 Lansing, MI 48909 TEL: (517) 335-9800 FAX: (517) 335-9600

Sample	Number AA36391	SAMPL	Æ #1					· · · · -
CAS#	Analyte Name	Result	Unit	RL	Qualifier	Date Tested	Method	Analyst
	Alkalinity - Bicarbonate	301	mg/L	10		08/26/2004	Calculated	LU
	Alkalinity - Carbonate	ND	mg/L	10		08/26/2004	Calculated	LU
	Alkalinity (as CaCO3)	301	mg/L	20		08/10/2004	310.1	LU
16887006	Chloride	504	mg/L	1	D	08/13/2004	325	LÜ
	Sulfate	14	mg/L	2	•	08/13/2004	375.1	LU
	COD	7900	mg/L	5	D	08/20/2004	410	MB
	KN TP - Digestion	Complete	d ·			08/17/2004	351.2	DSI
7723-14-0	Total Phosphorus	4.3	mg P/L	0.010	T.	08/17/2004	365.4	DSI
7664-41-7	Ammonia	.06	mg N/L	0.01		08/12/2004	350.1	RA
7001 71-7								
7727-37-9	Nitrate + Nitrite	.04	mg N/L	0.01		08/12/2004	353.2	RA
7727-37-9	Nitrate + Nitrite Number AA36392	.04 SAMPL		0.01		08/12/2004	353.2	RA
7727-37-9 Sample				0.01	Qualifier	08/12/2004 Date Tested	353.2 Method	RA Analyst
7727-37-9 Sample	Number AA36392	SAMPL	Æ #2		Qualifier			
7727-37-9 Sample	Number AA36392 Analyte Name	SAMPL Result	E #2	RL	Qualifier	Date Tested	Method	Analyst
7727-37-9	Number AA36392 Analyte Name Alkalinity - Bicarbonate	SAMPL Result 301	E #2 Unit mg/L	RL 10	Qualifier	Date Tested 08/26/2004	Method Calculated	Analyst LU
7727-37-9 Sample	Analyte Name Alkalinity - Bicarbonate Alkalinity - Carbonate	SAMPL Result 301 ND	E #2 Unit mg/L mg/L	RL 10	Qualifier	Date Tested 08/26/2004 08/26/2004	Method Calculated Calculated	Analyst LU LU
7727-37-9 Sample CAS#	Analyte Name Alkalinity - Bicarbonate Alkalinity - Carbonate Alkalinity (as CaCO3)	Result 301 ND 301	E#2 Unit mg/L mg/L mg/L	RL 10		Date Tested 08/26/2004 08/26/2004 08/10/2004	Method Calculated Calculated 310.1	Analyst LU LU LU
7727-37-9 Sample CAS#	Analyte Name Alkalinity - Bicarbonate Alkalinity - Carbonate Alkalinity (as CaCO3) Chloride	Result 301 ND 301 143	E#2 Unit mg/L mg/L mg/L mg/L mg/L	RL 10		Date Tested 08/26/2004 08/26/2004 08/10/2004 08/13/2004	Method Calculated Calculated 310.1 325	Analyst LU LU LU LU
7727-37-9 Sample CAS#	Analyte Name Alkalinity - Bicarbonate Alkalinity - Carbonate Alkalinity (as CaCO3) Chloride Sulfate	SAMPL Result 301 ND 301 143 20	E#2 Unit mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	RL 10 10 20 1	D _.	Date Tested 08/26/2004 08/26/2004 08/10/2004 08/13/2004 08/13/2004	Method Calculated Calculated 310.1 325 375.1	Analyst LU LU LU LU LU LU
7727-37-9 Sample CAS#	Analyte Name Alkalinity - Bicarbonate Alkalinity - Carbonate Alkalinity (as CaCO3) Chloride Sulfate COD	Result 301 ND 301 143 20 8000	E#2 Unit mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	RL 10 10 20 1	D _.	Date Tested 08/26/2004 08/26/2004 08/10/2004 08/13/2004 08/13/2004 08/20/2004	Method Calculated Calculated 310.1 325 375.1	Analyst LU LU LU LU LU MB
7727-37-9 Sample CAS#	Analyte Name Alkalinity - Bicarbonate Alkalinity - Carbonate Alkalinity (as CaCO3) Chloride Sulfate COD KN TP - Digestion	SAMPL Result 301 ND 301 143 20 8000 Completed	IE #2 Unit mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	RL 10 10 20 1 2	D _.	Date Tested 08/26/2004 08/26/2004 08/10/2004 08/13/2004 08/13/2004 08/20/2004 08/17/2004	Method Calculated Calculated 310.1 325 375.1 410 351.2	Analyst LU LU LU LU LU MB DS1

pits filled the year

16 N area

16 N area

18+ 10,000 gallfeit discharge

CAS#: Chemical Abstract Service Registry Number

RL: Reporting Limit
ND: Not Detected

ug/L: microgram/liter (ppb) mg/L: milligram/liter (ppm) ug/Kg: microgram/kilogram (ppb) mg/Kg: milligram/kilogram (ppm) Laboratory Contacts

Inorganic Unit Mgr: Sandy Gregg Organic Unit Mgr: Carol Smith Systems Mgmt Unit: George Krisztian



P.O. Box 30270 Lansing, MI 48909 TEL: (517) 335-9800 FAX: (517) 335-9600

Oualifier Code	Qualifier Description
A	Value reported is the mean of two or more determinations.
c	Value calculated from other independent parameters.
D	Analyte value quantified from a dilution(s); reporting limit (RL) raised.
E	Result is estimated due to high recovery of batch QC.
F	Free cyanide was not analyzed due to low level of total cyanide.
G	Result and RL are estimated due to initial calibration standard criteria failure.
Н	Recommended laboratory holding time was exceeded.
I	Dilution required due to matrix interference; reporting limit (RL) raised.
j 1	Analyte was positively identified. Value is an estimate.
JA	Result is estimated due to multiple Aroclors present.
JC .	Result is estimated since confirmation analysis did not meet acceptance criteria
'ID	Due to severe degradation, specific Aroclor identification is difficult and quantitation is estimated.
K	RL(s) raised due to matrix interferences.
LB	Reported library search compounds are tentative identifications with estimated concentrations.
M	The level of the method preparation blank (MPB) is reported in the qualifier column.
N	Non-homogeneous sample made analysis of sample questionable.
0	Result and RL estimated due to analysis from an open vial.
P	Recommended sample collection/preservation technique not used; reported result(s) is an estimate.
Q	Quantity of sample insufficient to perform analyses requested.
R	Result confirmed by re-extraction and analysis.
S	Supernatant analyzed.
T	Reported value is less than the reporting limit (RL).
l v	Value not available due to dilution.
l w	Reported value is less than the method detection limit (MDL).
Х	Methods 8260 & 624 are used to analyze volatile organics that have boiling points below 200°C.
	2-Methylnaphthalene & naphthalene have boiling points above 200°C and are better suited to analysis
	by methods 8270 or 625 as semivolatile organics.
1	Result(s) and RL(s) are estimated due to low surrogate recovery.
2	Result is estimated due to high surrogate recovery.
3	Result(s) and RL(s) are estimated due to low matrix spike recovery.
4	Result is estimated due to high matrix spike recovery.
5	Result and RL are estimated due to low continuing calibration standard criteria failure.
6	Result is estimated due to high continuing calibration standard criteria failure.
7	Result(s) and RL(s) are estimated due to poor precision.
8	Result(s) and RL(s) are estimated due to low recovery of batch QC.
KR	RL(s) raised due to low sample volume submitted.
KS	RL(s) raised due to low total solids.
KW	RL(s) raised due to light sample weight.
9	Result outside QC acceptance criteria.

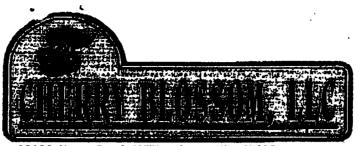
CAS# : Chemical Abstract Service Registry Number

RL: Reporting Limit
ND: Not Detected

ug/L: microgram/liter (ppb)
mg/L: milligram/liter (ppm)
ug/Kg: microgram/kilogram (ppb)
mg/Kg: milligram/kilogram (ppm)

Laboratory Contacts

Inorganic Unit Mgr. Sandy Gregg
Organic Unit Mgr. Carol Smith
Systems Mgrnt Unit: George Krisztian



10190 Munito Road, Williamsburg, MI 49690 (231) 264- 5260 UPSTAIRS FAX (231) 264-9129 DOWNSTAIRS FAX (231) 264-8774

FACSIMILE TRANSMITTAL SHEET

TO: TANIC	e Heve	FROM:	BRIAN S	in the
COMPANY:	11000	DATE:	Digm.	
FAX NUMBER:		TOTAL	NO. OF PAGES INCLUD	DING COVER
·				į. fi
URGENT	FOR REVIEW	PLEASE COMMENT	PLEASE REPLY	PLEASE RECYCLE
NOTES/ COMMENTS				



4125 Cedar Run Rd., Suite B Traverse City, MI 49684 Phone 23 1-946-6767 Fax 231-946-8741 www.sosanalytical.com

COMPANY:

CHERRY BLOSSOM, L.L.C.

SOS PROJECT NO:

043575 - 1

NAME:

DATE SAMPLED:

7/15/04

PROJECT NO: WSSN:

TIME SAMPLED: SAMPLE MATRIX:

DRINKING WATER

LOCATION:

10190 MUNRO RD

SAMPLE ID:

231 264 8774;

STRO

from 1st Round

SAMPLED BY:

WILLIAMSBURG

DATE RECEIVED:

7/16/04

GREG MOORE/GH BETZ

TIME RECEIVED:

10:35 AM

Units (PPB) Analyst	RS/VLK Date E	stracted=	Date Completed 7/19/04	Prep Method= L	PA 5030B
Analyte	Concentration	LOD	Analyte C	oncentration	LOE
ACETONE	ND	5.0	1,1-DICHLOROPROPENE	ND	0.5
ACRYONITRILE.	ND	5.0	cis-1,3-DICHLOROPROPENE	ND	0.5
ALLYL CHLORIDE	ND	5.0	trans-1,3-DICHLOROPROPENE	ND	0.5
BENZENE	ND	0.5	DIETHYL ETHER	ND	5.0
BROMOBENZENE	ND	0.5	ETHYLBENZENE	ND	ح.0
BROMOCHLOROMETHANE	ND	0.5	ETHYL METHACRYLATE	ND	5.0
BROMODICHLOROMETHANE	ND	0.5	HEXACHLOROBUTADIENE	ND	0.5
BROMOFORM	ND	0.5	HEXACHLOROETHANE	מא	5.0
BROMOMETHANE	NID	0.5	2-HEXANONE	ND	5.0
N-BUTYUBENZENE	ND	0.5	IDOMETHANE	ND	0.5
4-BUTYLBENZENE	ND	0.5	ISOPROPYLBENZENE	ND	0.5
'JTYLBENZENE	NID	0.5	ISOPROPYLTOLUENE	ND	0.5
ÁRBON DISULFIDE	CIM	0.3	METHYL ACRYLATE	MD	5.0
CARBON TETRACHLORIDE	NID	0.5	METHYL ETHYL KETONE	536	50.0
CHLOROBENZENE	ND	0.5	METHYL-HBUTYL ETHER	ND	5.0
1-CHLOROBUTANE	ND	0.5	METHYLENE CHLORIDE	ND	5.0
CHLOROFORM	ND	0.5	METHYL METHACRYLATE	ND	5.0
CHLOROETHANE	ND	0.5	MBK	ND	5.0
CHLOROMETHANE	ND	0.5	2-METHYLNAPHTHALENE	ND	5.0
2-CHLOROTOLUENE	ND	0.5	NAPHTHALENE	ND	2.5
4-CHLOROTOLUENE	ND	0.5	PENTACHLOROETHANE	ND	5.0
DIBROMOCHLOROMETHANE	ND	0.5	n-PROPYLBENZENE	ND	0,5
DIBROMOMETHANE	ND	0.5	STYRENE	ND	0.5
1,2-DIBROMO3CHLOROPROPANE	E ND	5.0	1,1,1,2-TETRACHLOROETHANE	ND	0.5
1,2-DIBROMOETHANE	ND	0.5	1,1,2,2-TETRACHLOROETHANE	ND	0.5
1,2-DICHLOROBENZENE	ND	0.5	TETRACHLOROETHENE	ND	0.5
1,3-DICHLOROBENZENE	ND	0.5	TOLUENE	1.8	0.5
1,4-DICHLOROBENZENE	ND	0.5	1,2,3-TRICHLOROBENZENE	ND	0.5
-1,4-DICHLORO-2-BUTTENE	ND	5.0	1,2,4-TRICHLOROBENZENE	ND	0.5
DICHLORODIFLUOROMETHANE	ND	0.5	1,1,1-TRICHLOROETHANE	ND	0.5
1,1-DICHLOROETHANE	ХD	0.5	1,1,2-TRICHLOROETHANE	ND	0.5
1,2-DICHLOROETHANE	ND	0.5	TRICHLOROETHENE	ND	0.5
1,1-DICHLOROETHENE	ND	0.5	TRICHLORFLOUROMETHANE	ND	0.5
⇒-1,2-DICHLOROETHENE	ND	0.5	1,2,3-TRICHLOROPROPANE	ND	0.5
rang-1,2-DICHLOROETHENE	ND	0.5	1.2,4-TRIMETHYLBENZENE	1.2	0.5
,2-DICHLOROPROPANE	ND	0.5	1,3,5-TRIMETHYLBENZENE	ND	0.5
3-DICHLOROPROPANE	ND	و. د	VINYL CHLORIDE	ND	0.5
DICHLOROPROPANE	ND	0.5	SI AM M 4 SN D	1.7	1.5

ND = NOT DETECTED LOD = LIMIT OF DETECTION

WINLLOVEN SHANNA SHEA / LAB MANAGER: R. SIMMERMAN / ORGANIC CHEMIST



4125 Cedar Run Rd., Suite B Traverse City, MJ 49684 Phone 231-946-6767 Fax 231-946-8741 www.sosanalytical.com

CHERRY BLOSSOM, L.L.C.

SOS PROJECT NO:

043575 - 1

SAMPLED BY:

GREG MOORE/GE BUTZ

DATE RECEIVED:

7/16/04

TIME RECEIVED:

10:35 AM

SAMPLE ID:

IST RO

DATE SAMPLED:

7/15/04

TIME SAMPLED: SAMPLE MATRIX:

DRINKING WATER

LOCATION:

WELL PERMIT:

NAME: PROJECT NO:

WSSN:

TAX ID:

WILLIAMSBURG

10190 MUNRO RD

MI

COUNTY: TWP:

INORGANICS

Analysis	Concentration	rop	<u>Units</u>	Analyst	<u>Data</u> Completed	Drinking Water Reg Limit(MCL)
CHLORIDE SM4500 CI-C	44	1	-mg/1. (PPM)	KMC	7/20/04	250(SMCL)
CYANIDE-TOTAL SM4500 CN-C/R	0.031	0.005	mg/L (PPM)	KMC	7/29/04	0.2
PLUORIDR SM4500-F C	ND	0.2	rog/L (PPM)	KMC	7/19/04	4
NITROGEN, NITRATE - EPA 353.2	ND	0.15	mg/L (PPM)	KMC	7/21/04	10
NITROGEN, NITRITE - FPA 353.2	CIN	0.005	mg/L (PPM)	KMC	7/21/04	1
SULI/ATE SM4500 SO4	8	3	тц/Г. (PPM)	KMC	7/26/04	250(SMCL)

SM9223 COLIFORM BACTERIA - PRESENCE/ABSENCE

SAMPLE RESULT

Drinking Water Reg Limit(MCL)

TOTAL COLIFORM BACTERIA

PRESENT

ABSENT

F. coli BACTERIA

ABSENT

ABSENT

ND = NOT DETECTED LOD = LIMIT OF DETECTION SMCL = FEDERAL NON-ENFORCEABLE LIMIT MCL = MAXIMUM CONTAMINANT LEVEL

APPROVED BY:

SHANNA SHEA LAB MANAGER SENT BY: CHERRY BLOSSOM LLC;



4125 Cedar Run Rd., Suite B Traverse City, MI 49684 Phone 231-946-6767 Fax 231-946-8741 www.sosanalytical.com

COMPANY:

CHERRY BLOSSOM, L.L.C.

SOS PROJECT NO: SAMPLED BY:

043575 - 1

NAME:

PROJECT NO:

GREG MOORIVGE BETZ

WSSN:

DATE RECEIVED:

7/16/04

WELL PERMIT: TAX ID:

TIME RECEIVED: SAMPLE ID:

10:35 AM IST RO

LOCATION:

10190 MUNRO RD

WILLIAMSBURG

DATE SAMPLED: TIME SAMPLED:

7/15/04

SAMPLE MATRIX:

DRINKING WATER

COUNTY: TWP:

METAL S

Analysis	Concentration	LOD	<u>Units</u>	Analyst	<u>Date</u> Completed	<u>Method</u>	Drinking Water Reg Limit(MCL)
ANTIMONY FPA 200.9 GFAA	ND	0.006	mg/1. (PPM)	KJ	7/21/04		0,006
ARSENIC EPA 200.9 OFAA	ND	0.005	mg/L (PPM)	KJ	7/30/04		0.01
BARIUM SMB111 Ba-D FLAA	מא	0.5	mg/I. (PPM)	KJ	7/22/04		2
BERYLLIUM EPA 200.9 (FAA	ND	0.001	mg/I. (PPM)	KJ	7/19/04		0.004
CADMIUM EPA 200.9 OFAA	ND	0.001	mg/L (PPM)	KJ	7/22/04		0.005
_IROMIUM IIPA 200.9 GPAA	ND	0.002	mg/L (PPM)	KJ	8/3/04		0.1
COPPER SM3111 Cu-B F1.AA	ND	0.05	mg/L (PPM)	KJ	7/20/04		1.3
COPPER SM3111 Cu-B FLAA	ND	0.05	mg/L (PPM)	ĸJ	7/20/04		1.3
IARDNESS(CALC) SM2340-B	32	1	mg/L (PPM)	KJ	7/22/04		
IRON SM3111 Ke-B FI.AA	0.39	0.05 (mg/L (PPM)	ੇ ਲ	7/27/04		0.3 (SMCL)
LEAD EPA 200.9 OFAA	NID	0.002	mg/i, (PPM)	ĸ	7/20/04		0.015
MANGANESE SM3111 Mo-B FT.AA	ND	0.05	mg/L (PPM)	KJ	7/21/04		0.05 (SMCL)
MERCURY ILPA 245.1 CV	מא	0.0005	mg/L (PPM)	ĸ	7/28/04	7470	0.002
NICKEL SM3111 NI-B HI.AA	ND	0.05	mg/L (PPM)	ĸ	7/19/04		0.1
SELENIUM EPA 200.9 CIFAA	0.002	0.001	mg/L (PPM)	DEQ	8/6/04		0.05
SODIUM SM3111 Na-13 FLAA	30.8	5.0	mg/L (PPM)	ĸ	7/22/04		
THALLIUM 1:PA 200.9 CFAA	NO	0.002	mg/L (PPM)	KJ	7/20/04		0.002
unia marria n.m							

mg/1. (PPM)

ND = NOT DETECTED LOD = LIMIT OF DETECTION FLAA = FLAME ATOMIC ABSORPTION GFAA = GRAPHITE FURNACE ATOMIC ABSORPTION J = COLD VAPOR AA ANALYSIS SMCL = FEDERAL NON-ENFORCEABLE LIMIT

MCL = MAXIMUM CONTAMINANT LEVEL

ND

ZINC SM3111 Zn-B FLAA

DISS = DISSOLVED

Page 1 of 1

APPROVED BY:

KJ

SHANNA SHEA LAB MANAGER

7/20/04



4125 Cedar Run Rd., Suite B Traverse City, MI 49684 Phone 231-946-6767 Fax 231-946-8741 www.sosanalytical.com

COMPANY:

CHERRY BLOSSOM, L.L.C.

SOS PROJECT NO:

043576 - 1

NAME:

PROJECT NO:

WSSN:

WELL PERMIT:

TAX ID: LOCATION:

10190 MINTO RD

M

DATE RECEIVED:

SAMPLED BY:

7/16/04

TIME RECEIVED: SAMPLE ID:

10:35 AM 2ND BO

DATE SAMPLED:

7/15/04

TIME SAMPLED: SAMPLE MATRIX:

DRINKING WATER

GREG MOORE/GE BLITZ

COUNTY:

TWP:

<u>Analysis</u>

INORGANICS

Concentration LOD

<u>Units</u>

Onte **Drinking Water** Analyst Completed Reg Limit(MCL)

NITROGEN, NITRATE - EPA 353.2

ND

0.15 mg/L (PPM)

KMC

7/21/04

10

M9223 COLIFORM BACTERIA - PRESENCE/ABSENCE

SAMPLE RESULT

Drinking Water Reg Limit(MCL)

TOTAL COLIFORM BACTERIA

PRESUNT

ABSENT

IL coli BACTERIA

ABSENT

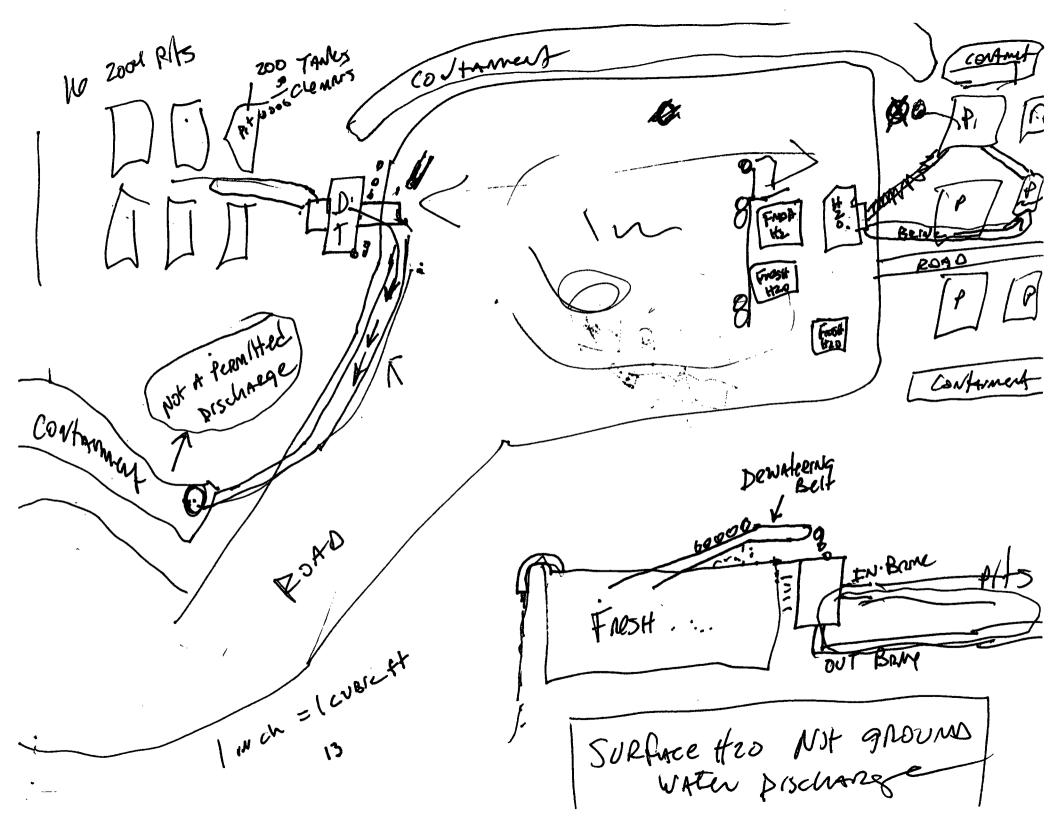
ABSENT

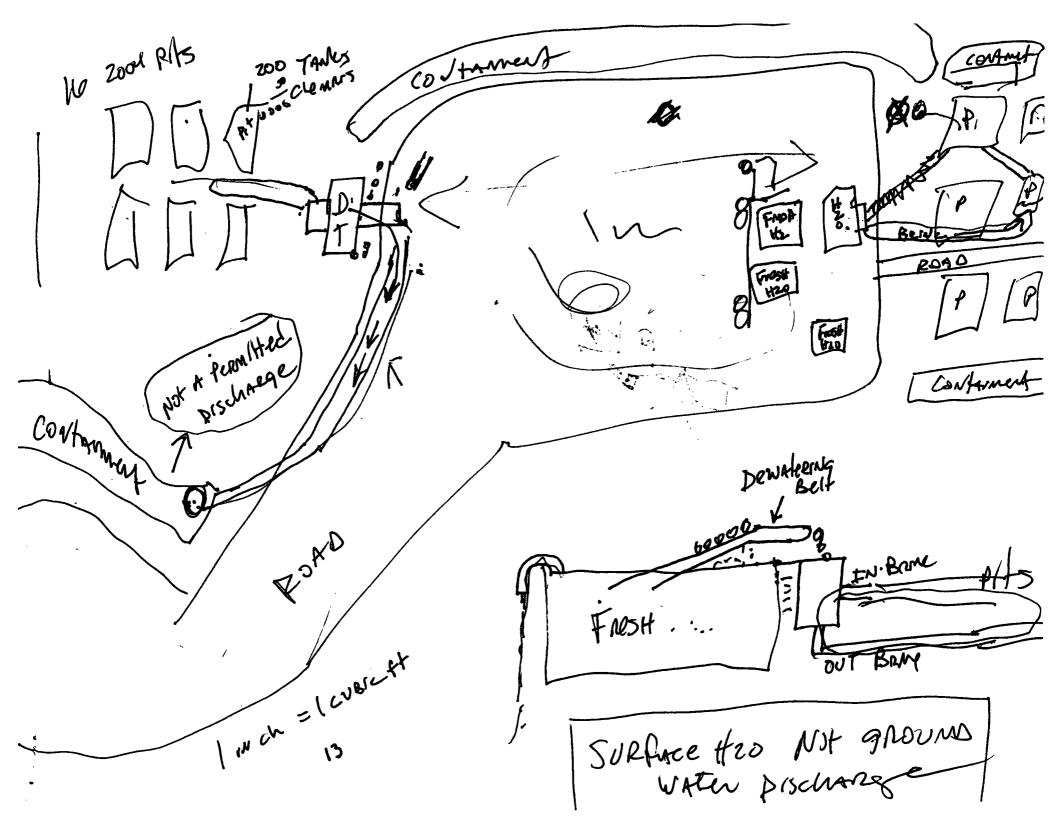
ND = NOT DETECTED LOD = LIMIT OF DETECTION SMCL = FEDERAL NON-ENFORCEABLE LIMIT MCL = MAXIMUM CONTAMINANT LEVEL

APPROVED BY:

SHANNA SHEA LAB MANAGER

Page 1 of 1







4125 Cedar Run Rd., Suite 8 Traverse City, MI 49684 Phone 231-946-6767 Fax 231-946-8741 www.sosanalytical.com

COMPANY:

CHERRY BLOSSOM, L.L.C.

SOS PROJECT NO:

043888

NAME:

PROJECT NO:

WSSN:

WELL PERMIT:

TAX ID: LOCATION:

BY:....

WILLIAMSBURG MI

BRIAN

SMITH/CHERRYBLOSSOM

DATE SAMPLED:

SAMPLED BY:

7/27/04

TIME SAMPLED:

1:00 PM

SAMPLE MATRIX:

GRAB/WATER

DATE RECEIVED:

7/27/04

TIME RECEIVED:

4:05 PM

COUNTY:

TWP:

41

INORGANICS/WET CHEMISTRY/METALS

No	: Analysis	Consentration	LOD	<u>Units</u>	Analyst	<u>Date</u> Completed	Orinking Water Reg Limit(MCL)
3/	MPLE IO: EFFLUEN'T PIPE WATER	, ve					
1	BOD S-DAY EPA 405.1	4,300	4,000	mg/L (PPM)	KMC	8/2/04	
1	CITI.ORIDE EPA 325.2	151	10	mg/L (PPM)	KMC	8/3/04	
1	PHOSPHORUS-TOTAL EPA 365.4M	2.16	0.15	mg/L.(PPM)	KMC	7/29/04	
i	SODIUM - EPA 273.1	65.6	5.0	mg/1. (PPM)	ĸJ	7/29/04	
I	SULFATE SM4500 SO4	ND	20	mg/L (PPM)	KMC	7/29/04	
Ŝ	MPLE ID: CONTAINMENT POND (MIDDLE)						
2.	BOD 5-DAY EPA 405.1	< 2,000	2,000	ung/L (PPM)	KMC	8/2/04	
2	CHLORIDE EPA 325.2	157	10	mg/L (PPM)	KMC	8/3/04	
2	PHOSPHORUS-TOTAL EPA 365.4M	2.97	0.15	mg/I. (PPM)	KMC	7/29/04	
2	SODIUM - EPA 273.1	49.7	5.0	mg/L (PPM)	KJ	7/29/04	
2	SULL'ATE SM4500 SCM	ND	20	mg/L (PPM)	KMC	7/29/04	

then by Brim Smith at point where water was broking up from the Annuater chain overflow (See sketch)

ND = NOT DETECTED LOD = LIMIT OF DETECTION SMCL = FEDERAL NON-ENFORCEABLE LIMIT MCL = MAXIMUM CONTAMINANT LEVEL s.u. = STANDARD pH UNITS REPORTED AT 25 C DISS = DISSOLVED

APPROVED BY:

LAB MANAGER

Page 1 of 1



GE Infrastructure Water & Process Technologies

WATER ANALYSIS REPORT

4000067064 CHERRY BLOSSOM LLC 10190 MUNRO RD Williamsburg, MI UNITED STATES 49690



Sampled: 16-JUL-2004
Reported: 22-JUL-2004
Field Rep: Moore, Gregory T.
91001190

	1ST RO	2ND RO	RAW WATER
	00719283	00719284	00719285
рн	5.6	5.9	4.4
Specific Conductance, at 25°C, µmhos	314	16.8	3430
Alkalinity, "P" as CaCO3, ppm	0	0	0
Alkalinity, "M" as CaCO ₃ , ppm	47	3.1	53
Sulfur, Total, as SO ₄ , ppm	15.8	< 5	573
Chloride, as Cl, ppm	39	< 0.5	641
Hardness, Total, as CaCO ₃ , ppm	36	< 1	1170
Calcium Hardness, Total, as CaCO ₃ , ppm	31	< 0.5	1010
Magnesium Hardness, Total, as CaCO ₃ , ppm	5.0	< 0.5	152
Barium, Total, as Ba, ppm	< 0.01	< 0.01	< 0.1
Strontium, Total, as Sr, ppm	0.12	< 0.01	3.9
Copper, Total, as Cu, ppm	< 0.05	< 0.05	0.68
Iron, Total, as Fe, ppm	0.41	< 0.05	21
Sodium, as Na, ppm	37	1.3	377
Potassium, as K, ppm	13.8	< 0.5	96
Zinc, Total, as Zn, ppm	< 0.01	< 0.01	0.27

test 30,000 gpd N 4 days/wh

GE imagination at work

Water & Process Technologies - **

Carlot of the Ca

WATER ANALYSIS REPORT

·祝福· 计分类数字 医水型电流 医水杨二氏小学术

3 6 9 80

4000067064
CHERRY BLOSSOM LLC
10190 MUNRO RD
Williamsburg, MI
UNITED STATES 49690

.**₩**

W. 20 ""

Sampled: 16-JUL-2004 Reported: 22-JUL-2004 Field Rep: Moore, Gregory T. 91001190

	1ST RO	2ND RO	RAW WATER
	00719283	00719284	00719285
Aluminum, Total, as Al, ppm	< 0.1	< 0.1	< 1
Manganese, Total, as Mn, ppm	< 0.01	< 0.01	0.27
Nitrite, as NO ₂ , ppm	< 0.5	< 0.5	< 5
Molybdenum, as Mo, ppm	< 0.06	< 0.06	< 0.6
Nitrate, as NO ₃ , ppm	< 1	< 1	< 10
Phosphate, Total, as PO ₄ , ppm	< 0.4	< 0.4	13.3
Phosphate, Total Inorganic, as PO ₄ , ppm	< 0.2	< 0.2	13.3
Phosphate, Ortho-, as PO ₄ , ppm	< 0.2	< 0.2	I
Phosphate, Filtered Ortho-, as PO ₄ , ppm			0.4
Silica, Total, as SiO ₂ , ppm	0.6	< 0.5	20
Solids, Total Suspended mg/l	А	A	A
Solids, Total Dissolved mg/l, at 105°\tab	A	A	A
Fluoride, as F, ppm	< 0.4	< 0.4	< 0.4
Arsenic, Total, as As, ppm	< 0.1	< 0.1	< 1
Beryllium, as Be, ppm	< 0.01	< 0.01	< 0.1
Boron, as B, ppm	0.05	< 0.05	< 0.5

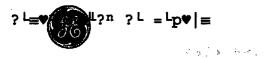


=♥n L♥ 2= n = @P Hiifrastructure Water & Process Technologies

WATER ANALYSIS REPORT

4000067064 CHERRY BLOSSOM LLC 10190 MUNRO RD Williamsburg, MI UNITED STATES 49690 Sampled: 16-JUL-2004 Reported: 22-JUL-2004 Field Rep: Moore, Gregory T. 91001190

	1ST RO	2ND RO	RAW WATER
	00719283	00719284	00719285
Cadmium, as Cd, ppm	< 0.01	< 0.01	< 0.1
Chromium, Total, as Cr, ppm	< 0.03	< 0.03	< 0.3
Cobalt, Total, as Co, ppm	< 0.01	< 0.01	< 0.1
Lead, Total, as Pb, ppm	< 0.05	< 0.05	< 0.5
Nickel, Total, as Ni, ppm	< 0.01	< 0.01	< 0.1
Selenium, Total, as Se, ppm	< 0.1	< 0.1	< 1
Tin, Total, as Sn, ppm	< 0.05	< 0.05	< 0.5
Titanium, Total, as Ti, ppm	< 0.01	< 0.01	< 0.1
Vanadium, Total, as V, ppm	< 0.01	< 0.01	< 0.1
Thallium, Total, as Tl, ppm	0.1	< 0.1	< 1
Carbon, Total Organic, as C, ppm	1110	49	5410
Turbidity, NTU	7.1	0.7	558



GE Infrastructure Water & Process Technologies

WATER ANALYSIS REPORT

4000067064 CHERRY BLOSSOM LLC 10190 MUNRO RD Williamsburg, MI UNITED STATES 49690 Sampled: 16-JUL-2004 Reported: 22-JUL-2004 Field Rep: Moore, Gregory T. 91001190

Result Legend

A - This test was aborted for cause. More detail is provided below. I - A chemical or physical interference prevented the labs ability to perform this test.

Comments

Sample Name: 1ST RO Lab ID: 00719283

TDS and TSS are no longer routinely required for Grids 40,41 and 42. If you have any questions, please contact the laboratory.

Lab ID: 00719284 Sample Name: 2ND RO

TDS and TSS are no longer routinely required for Grids 40,41 and 42. If you have any questions, please contact the laboratory.

Sample Name: RAW WATER Lab ID: 00719285

TDS and TSS are no longer routinely required for Grids 40,41 and 42. If you have any questions, please contact the laboratory.

Get 60



606 Franklin St., Traverse City, MI 49686 Phone (231) 922-4922 Fax (231) 922-8170

Facsimile Transmittal To: Janice Fax. No.: (231)~776-1511 Copy: Fax. No.: From: Liz Hart Comi Date: 12-15-05 Pages: (Including cover sheet) RE: Comments: WRS November Results 2005

OPERATIONS MANAGEMENT INTERNATIONAL TRAVERSE CITY WASTEWATER TREATMENT PLANT

ANALYTICAL LABORATORY REPORT

CLIENT:DEO	

CLIENT:DE	Q	REPORT DA	ATE: 12-15-05		:
Sample ID	Sample Date	Analysis Date	Analysis	Units	Result
WRS	11-10-05	11-11-05	BOD	Mg/L	6,534
WRS	11-10-05	11-15-05	Chloride	Mg/L	1,050
		L		 	
					
					
					

Signature, Lab Analyst



4125 Cedar Run Road, Suite B Traverse City, MI 49684 voice: (231) 946-6767

fax: (231) 946-8741

SOSanalytical.com

COMPANY:

WILLIAMSBURG R & S

SOS PROJECT NO:

023825 - 1

NAME:

PROJECT NO:

SAMPLED BY::

TIM GATES/ISE

WSSN:

02399084-03E

10/31/02

DATE RECEIVED: TIME RECEIVED:

11:05 AM

WELL PERMIT:

SAMPLE ID:

MUNRO ROAD OUTFALL

TAX ID:

MUNRO RD.

DATE SAMPLED:

10/31/02

LOCATION:

WILLIAMSBURG

TIME SAMPLED: **SAMPLE MATRIX:**

WATER

MI

COUNTY:

TWP:

INORGANICS/WET CHEMISTRY

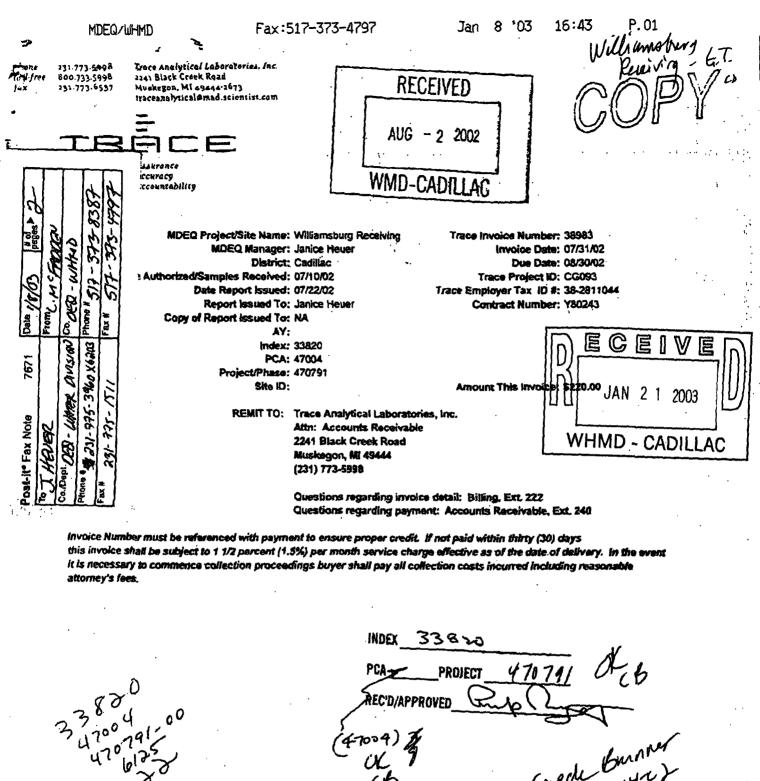
Analysis	Concentration	LOD	<u>Units</u>	<u>Analyst</u>	Completed	Reg Limit(MCL)
BOD 5-DAY EPA 405.1	<200	200	mg/L (PPM)	KMC	11/6/02	
CHLORIDE EPA 325.2	3	1	mg/L (PPM)	KMC	11/5/02	
PHOSPHORUS-TOTAL EPA 365.4M	ND	0.25	mg/L (PPM)	KMC	10/31/02	
SODIUM - EPA 273.1	3.05	0.5	mg/L (PPM)	KJ	11/4/02	

ND = NOT DETECTED **LOD = LIMIT OF DETECTION** SMCL = FEDERAL NON-ENFORCEABLE LIMIT MCL = MAXIMUM CONTAMINANT LEVEL s.u. = STANDARD pH UNITS REPORTED AT 25 C DISS = DISSOLVED

APPROVED BY:

SHANNA SHEA LAB MANAGER

Page 1 of 1



962-88 76150003158

2382811044

Caede Burner (aede 8142) 21510699

WASTE MANAGEMENT DIVISION

AUG 0 8 2002

- one fox 231.773.5**298** 800.733.5998 231.773.6537 Frace Analytical Laboratories. Inc. 2241 Black Creek Road Muskegon. MI 49444-2673 traceanalytical@mad.scientist.com



Accuracy Accountability

INVOICE SUMMARY # 38983

Client #	Lab#	Matrix	Task ID	Task	Cost Each	Cost Per Sample
Upper	CG093-01	Water	105	BOD	20.00	
			108.	Chloride	10.00	
			141	Sulfate .	13.00	• .
		•	129	Ammonia	20.00	,
			T26	Nitrate	10.00	•
			125	Nitrite	10.00	
			136	Phosphorus	15.00	
			15	ICP/Sodium	7.00	
			6	Microwave Digestion/Metals	5.00	110.00
Lower	CG093-02	Water	105	BOD	20.00	
			108	Chioride	10.00	
			141	Sulfate	13.00	
			129	Ammonia	20.00	
	•	•	126	Nitrate	10.00	
			125	Nitrite	10.00	
			136	Phosphorus	15.00	,
			15	ICP/Sodium	7.00	
			6	Microwave Digestion/Metals	5.00	110.00

Amount This Invoice: \$220,00